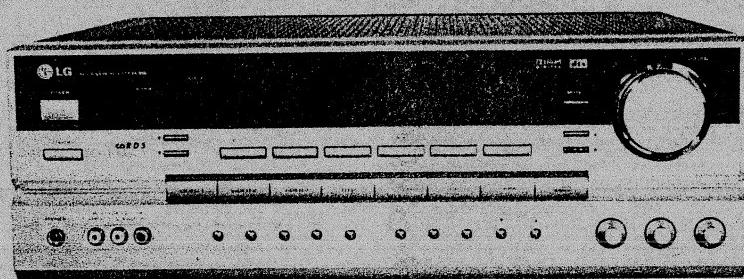




LG

AV RECEIVER SERVICE MANUAL



MODEL: FA-985AD

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SECTION 1. GENERAL PART

ESD PRECAUTIONS

Electrostatically Sensitive Devices (ESD)

Some semiconductor (solid state) devices can be damaged easily by static electricity. Such components commonly are called Electrostatically Sensitive Devices (ESD). Examples of typical ESD devices are integrated circuits and some field-effect transistors and semiconductor chip components. The following techniques should be used to help reduce the incidence of component damage caused by static electricity.

1. Immediately before handling any semiconductor component or semiconductor-equipped assembly, drain off any electrostatic charge on your body by touching a known earth ground. Alternatively, obtain and wear a commercially available discharging wrist strap device, which should be removed for potential shock reasons prior to applying power to the unit under test.
2. After removing an electrical assembly equipped with ESD devices, place the assembly on a conductive surface such as aluminum foil, to prevent electrostatic charge buildup or exposure of the assembly.
3. Use only a grounded-tip soldering iron to solder or unsolder ESD devices.
4. Use only an anti-static solder removal device. Some solder removal devices not classified as "anti-static" can generate electrical charges sufficient to damage ESD devices.
5. Do not use freon-propelled chemicals. These can generate electrical charges sufficient to damage ESD devices.
6. Do not remove a replacement ESD device from its protective package until immediately before you are ready to install it. (Most replacement ESD devices are packaged with leads electrically shorted together by conductive foam, aluminum foil or comparable conductive materials).
7. Immediately before removing the protective material from the leads of a replacement ESD device, touch the protective material to the chassis or circuit assembly into which the device will be installed.

CAUTION : BE SURE NO POWER IS APPLIED TO THE CHASSIS OR CIRCUIT, AND OBSERVE ALL OTHER SAFETY PRECAUTIONS.

8. Minimize bodily motions when handing unpackaged replacement ESD devices. (Otherwise harmless motion such as the brushing together of your clothes fabric or the lifting of your foot from a carpeted floor can generate static electricity sufficient to damage an ESD device).

SPECIFICATIONS

1. FM radio section

① Usable sensitivity.....	3dB
② Total harmonic distortion(1kHz, 1mv)	0.3%
- mono	0.5%
- stereo	
③ Signal-to-noise ratio(1mV)	67dB
- mono	65dB
- stereo	
④ Channel separation(1kHz).....	40dB
⑤ Frequency response, 30Hz ~ 14kHz	±1.5dB
⑥ IF rejection	80dB
⑦ Frequency range(Optional)	87.50~108.00MHz or 65~74MHz & 87.50~108.00MHz

2. AM(MW) radio section

① Usable sensitivity.....	50dB
② Signal-to-noise ratio(1mV).....	40dB
③ Frequency range(Optional)	522~1611kHz, 530~1720kHz or 530~1610kHz

3. LW(Optional) radio section

① Usable sensitivity.....	68dB
② Signal-to-noise ratio(10mV).....	35dB
③ Frequency range	153~281kHz

4. SW(Optional) radio section

① Signal-to-noise ratio.....	37dB
② Frequency range	5.8~18.0MHz

5. General section

① Power sources	Refer to the back panel
② Power consumption	250W
③ Dimensions(W × H × D).....	440 × 147 × 401mm
④ Net weight	13.2kg

6. Amplifier section

① Front output, in stereo mode - (8 ohm, THD 0.08%, 1kHz)	2x60W
② Total harmonic distortion(1kHz, output 60W, 8 ohm)	0.08%
③ IM Distortion - 60Hz: 7kHz, output 60W, 8 ohm	0.08%
- Input Sensitivity, 1KHz, output 60W, 8 ohm.....	200mV
④ Signal-to-noise ratio.....	90dB
⑤ Frequency Response, (-3dB)	10Hz~50kHz
⑦ Output level - TAPE OUT and VIDEO 1 OUT, 2.2 kohm.....	200mV
- Subwoofer	2V
⑧ Bass/Treble adjust, 100Hz/10kHz	±10dB

7. During surround mode

① Front output(1 ch) - 8 ohm, THD 0.1%, 1kHz	50W
② Center output(1 ch) - 8 ohm, THD 0.1%, 1kHz	50W
③ Rear output(1 ch) - 8 ohm, THD 0.1%, 1kHz	50W

8. Digital audio section

① Sampling frequency	32, 44.1, 48kHz
② Digital input level - Coaxial 75 ohm	0.5Vp-p
- Optical, luminous wavelength 660nm	-15 ~ -21dBm

9. Video section

① Color system.....	NTSC Color System
② Color system - Input sensitivity(-output level), 75 ohm	1V-p-p

SECTION 2. ELECTRICAL ADJUSTMENTS

A. How to adjust an IDLE current of AMP dept.

1. SET CONDITION

- (1) Put a Semi-Volume of Main Amp Board to be center Location.
• MAIN : VR501, VR502
• CENTER : VR1
• SURROUND : VR601, VR602

(2) No signal/No Load

(3) AC LINE VOLTAGE: 230V/50Hz

2. Turn on a set and Leave the set more than 5 minutes under above condition1
(Power/Drive TR can maintain a proper temperature.)

3. Move a Semi-Volumeto clockwise channel by channel. And adjust both end of Wafer voltage to be 10mV.

Channel	Adjustment	Measurement	Voltage	Remarks
Front-L ch	VR501	WA501	10±3mV	R557:22.7mA
Front-R ch	VR502	WA502	10±3mV	R558:22.7mA
Center ch	VR1	WA1	10±3mV	E39:22.7mA
Surround-L ch	VR601	WA601	10±3mV	R657:22.7mA
Surround-R ch	VR602	WA602	10±3mV	R658:22.7mA

4. Attention Points when UNIT ASS'Y and SET Handling;

- (1) Re-adjust each channel when repair the set replacing by POWER TR and Drive TR.
• FRONT AMP : Q523 ~ Q532
• CENTER AMP : Q12 ~ Q16
• SURROUND AMP : Q623 ~ Q632

B. Attention Points when Unit ASS'Y and set handling

1. To avoid a parts damage due to spark, Set the following parts electric discharge sufficiently when you touch the connection board.

MAIN BOARD	C425, C426(6800uF/50V)
------------	------------------------

2. Put the Electri Chassis on Checker of Connection Board when you making a checker of Connection Board. Electric discharge and electric capacitor of Connection Board over than 30 sec with 470ohm and 10W resistance.

INTERNAL BLOCK DIAGRAM OF ICs

■ NJM072B/082B/072/082

(DUAL J-FET INPUT OPERATIONAL AMPLIFIER)

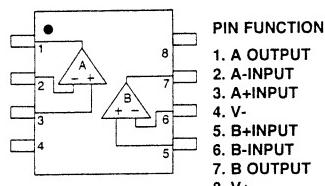
• GENERAL DESCRIPTION

The NJM072B/082B & NJM072/082 are dual JFET input operational amplifiers. They feature low input bias and offset currents, high input impedance and fast slew rate. The low harmonic distortion and low noise make them ideally suited for amplifiers with high fidelity and audio amplifier applications. The NJM072/082 may cause oscillation in some application like voltage follower.

• FEATURES

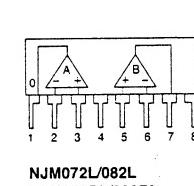
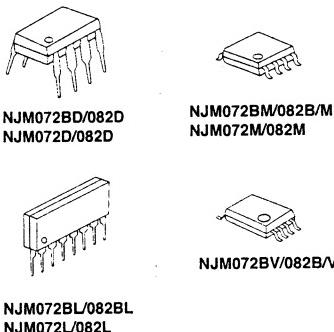
- Operating Voltage ($\pm 4V \sim \pm 18V$)
- J-FET Input
- High Input Resistance ($10^{12}\Omega$ typ.)
- Low Input Resistance (30pA typ.)
- High Slew Rate (13V/ μ s, 20V/ μ s typ.)
- Wide Unity Gain Bandwidth (3MHz, 5MHz typ.)
- Package Outline DIP8, DMP8, SSOP8, SIP8
- Bipolar Technology

• PIN CONFIGURATION



NJM072BD/082BD
NJM072D/082D
NJM072M/082M
NJM072BM/082BM
NJM072BV/082BV

• PACKAGE OUTLINE



NJM072L/082L
NJM072BL/082BL

■ NJM4558/4559(DUAL OPERATIONAL AMPLIFIER)

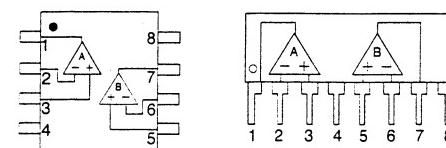
• GENERAL DESCRIPTION

The NJM4558/4559 integrated circuit are a dual high-gain operational amplifier internally compensated and constructed on a single silicon chip using an advanced epitaxial process. Combining the features of the NJM741 with the close parameter matching and tracking of a dual device on a monolithic chip results in unique performance characteristics. Excellent channel separation allows the use of the dual device in single NJM741 operational amplifier applications providing density. It is especially well suited for applications in differential-in, differential-out as well as in potentiometric amplifiers and where gain and phase matched channels are mandatory.

• FEATURES

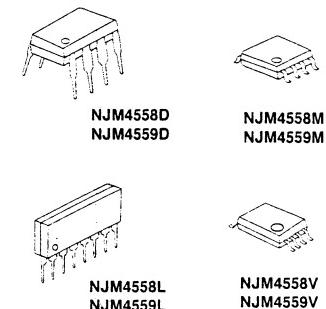
- Operating Voltage ($\pm 4V \sim \pm 18V$)
- High Voltage Gain (100dB typ.)
- High Input Resistance ($5M\Omega$ typ.)
- Package Outline DIP8, DMP8, SIP8, SSOP8
- Bipolar Technology

• PIN CONFIGURATION



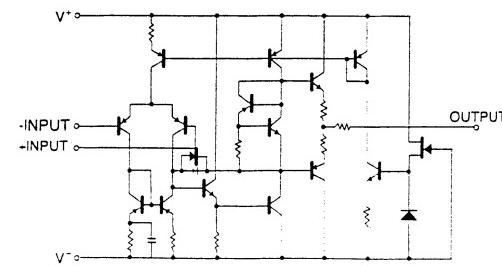
NJM4558D, NJM4558M, NJM4558V
NJM4559D, NJM4559M, NJM4559V

• PACKAGE OUTLINE

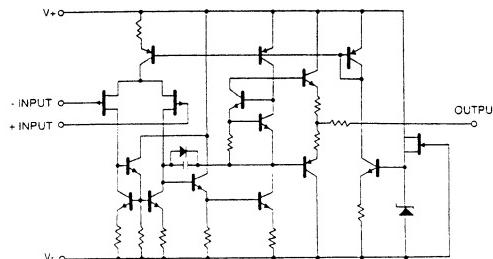


PIN FUNCTION
1. A OUTPUT
2. A-INPUT
3. A+INPUT
4. V-
5. B+INPUT
6. B-INPUT
7. B OUTPUT
8. V+

• EQUIVALENT CIRCUIT (1/2 shown)



• EQUIVALENT CIRCUIT



NJU7312A (ANALOG FUNCTION SWITCH)

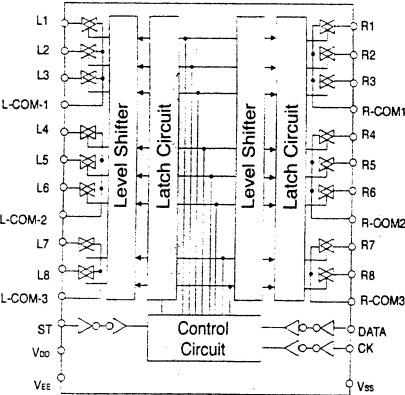
GENERAL DESCRIPTION

The NJU7312A is a quad 3-channel and dual 2-channel analog function switch, especially suitable for input selector of audio equipments. The high break down voltage analog switch controlled by 14-bit serial data based on logic operating voltage(5V) can ON and OFF of $\pm 15V$ signal. The analog switch is realized superior linearity of on-resistance in all voltage range, low distortion and wide dynamic range. Furthermore, the both of single and dual power supply application provides easy designing.

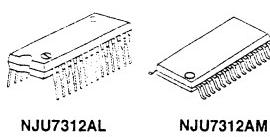
FEATURES

- Analog switch: quad 3 channel and dual 2 channel.
- High Break Down Voltage $\pm 15V$.
- Low Distortion THD: 0.002%(typ.)
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28/DMP 30
- C-MOS Technology

BLOCK DIAGRAM



PACKAGE OUTLINE



NJU7312AL

NJU7312AM

NJM2296 (5-INPUT 3OUTPUT VIDEO SW)

GENERAL DESCRIPTION

The NJM2296 is a 5-input 3-output video switch. Its switches select one from five signals received from VTR, TV, TV GAME and others. This IC is designed for audio items, such as AV amplifier and receivers, and others

FEATURES

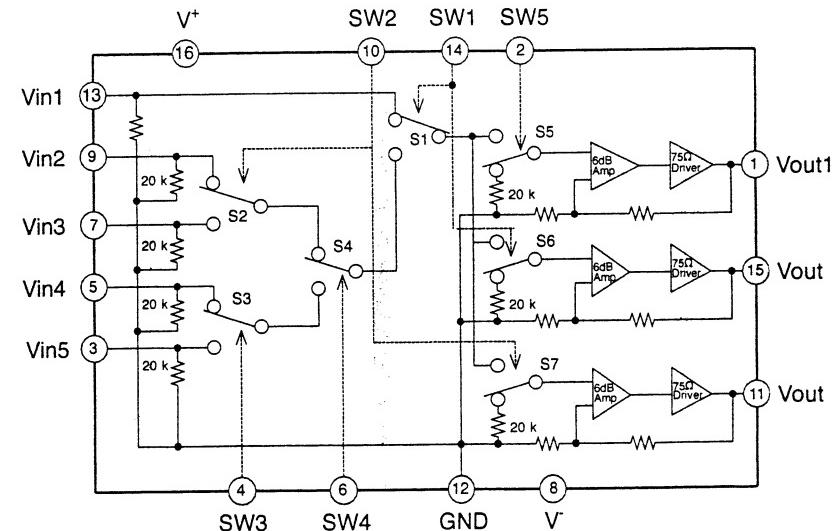
- 5-input 3-output
- Operating Voltage ± 4.0 to $\pm 6.5V$
- Operating Current $\pm 31mA$ typ. at $Vcc=\pm 5V$
- Crosstalk $-65dB$ typ.
- Internal 6dB Amplifier
- Internal 75Ω Driver
- Bipolar Technology
- Package Outline DIP16,DMP16

PACKAGE OUTLINE



NJM2296D

BLOCK DIAGRAM



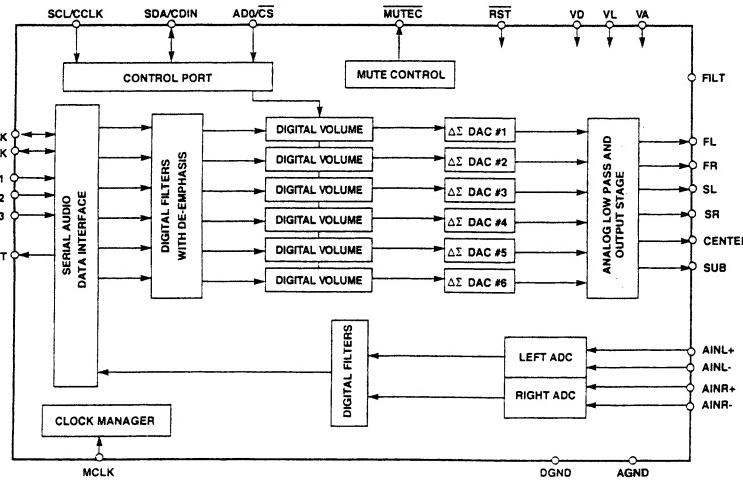
■ CS4228A
(24-Bit, 96kHz Surround Sound Codec)

• FEATURES

- Six 24-bit D/A Converters
100dB dynamic range
-90dB THD+N
- Two 24-bit A/D Converters
97dB dynamic range
-95dB THD+N
- Sample rates up to 100kHz
- Pop-free Digital Output Volume Controls
-90.5dB range, 0.5dB resolution(182 levels)
Variable smooth ramp rate, 0.125dB steps
- Mute Control pin for off-chip muting circuits
- On-chip Anti-alias and Output Filters
- De-emphasis filters for 32, 44.1 and 48kHz

• ORDERING INFORMATION

CS4228A-KS -10° to +70°C 28 -pin SSOP
CDB4228A Evaluation Board



• Description

The CS4228A codec provides two analog-to-digital and six digital-to-analog delta-sigma converters, along with volume controls, in a compact 28-pin SSOP device. Combined with an IEC958(SPdif) receiver (like the CS8414) and surround sound decoder (such as one of the CS492x or CS493xx families), it is ideal for use in DVD player, A/V receiver and car audio systems supporting multiple standards such as Dolby Digital AC-3, AAC, DTS, Dolby ProLogic, THX, and MPEG. A flexible serial audio interface allows operation in Left Justified, Right Justified I^s, or one Line Data modes.

• ORDERING INFORMATION

CS4228A-KS -10°C to +70°C 28-pin SSOP
CDB4228A Evaluation Board

■ NJU7313A
(ANALOG FUNCTION SWITCH)

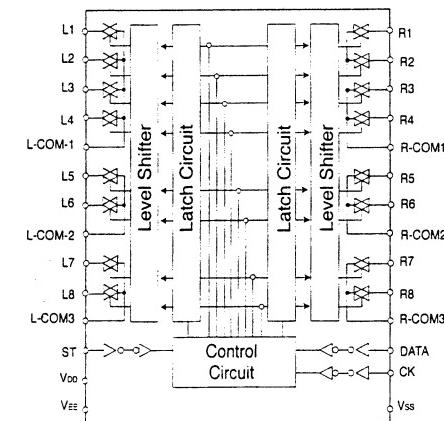
• GENERAL DESCRIPTION

The NJU7313A is a dual 4-channel and quad 2-channel analog function switch, especially suitable for input selector of audio equipments. The high break down voltage analog switch controlled by 14-bit serial data based on logic operating voltage (5V) can ON and OFF of ±15V signal. The analog switch is realized superior linearity of on-resistance in all voltage range, low distortion and wide dynamic range. Furthermore, the both of single and dual power supply application provides easy designing.

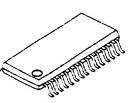
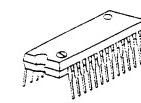
• FEATURES

- Analog switch: dual 3 channel and quad 2 channel.
- High Break Down Voltage ±15V.
- Low Distortion THD:0.002%(typ.)
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28/DMP 30
- C-MOS Technology

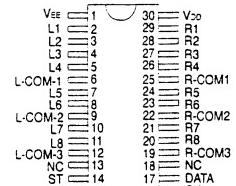
• BLOCK DIAGRAM



• PACKAGE OUTLINE



• PIN CONFIGURATION



NJU7313AM

NJU7311A
(ANALOG FUNCTION SWITCH)

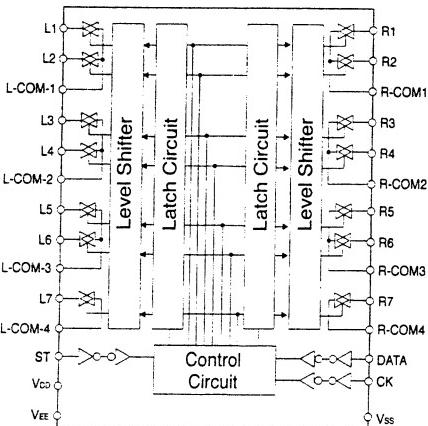
GENERAL DESCRIPTION

The NJU7311A is a hexad 2-channel and dual 1-channel analog function switch, especially suitable for input selector of audio equipments. The high break down voltage analog switch controlled by 14-bit serial data based on logic operating voltage (5V) can ON and OFF of $\pm 15V$ signal. The analog switch is realized superior linearity of on-resistance in all voltage range, low distortion and wide dynamic range. Furthermore, the both of single and dual power supply application provides easy designing.

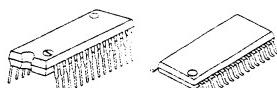
FEATURES

- Analog switch: hexad 2 channel and dual 1 channel.
- High Break Down Voltage $\pm 15V$.
- Low Distortion THD:0.002%(typ.)
- Superior Linearity of ON Resistance.
- Serial Data Control.
- Package Outline SDIP 28/DMP 30
- C-MOS Technology

BLOCK DIAGRAM



PACKAGE OUTLINE



NJU7311AL NJU7311AM

TC9482N/F
(TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC)

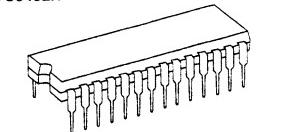
SYSTEM ELECTRONIC VOLUME CONTROL

The TC9482N and TC9482F are six-channel electronic volume control ICs developed for Hi-Fi audio equipment. Since all six channels can be individually controlled, the devices are optimum for audio equipment with multiple outputs.

FEATURES

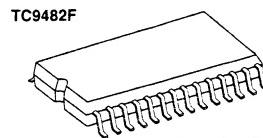
- Sound volume can be controlled in 97 steps from 0 to -95dB or up to an infinite level in 1dB increments.
- Incorporating six channels of volume control circuits, the device allows independent volume control.
- Can operate with a single or dual power supplies.
- Can control up to 4 chips on the same bus by using chip select input.
- Built-in interface for 5-V microcomputers.
- Thanks to its polysilicon resistor, the device allows you to configure a low-distortion, high-performance volume control system.
- Two packages supported: 28-pin shrink DIP and 28-pin flat package.

TC9482N



SDIP28-P-400-1.78

TC9482F

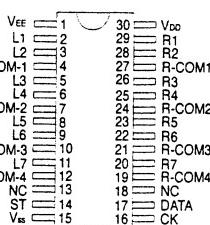


SOP28-P-450-1.27

Weight

SOIP28-P-450-1.27:	0.8g(Typ.)
SDP28-P-400-1.78:	2.2g(Typ.)

PIN CONFIGURATION

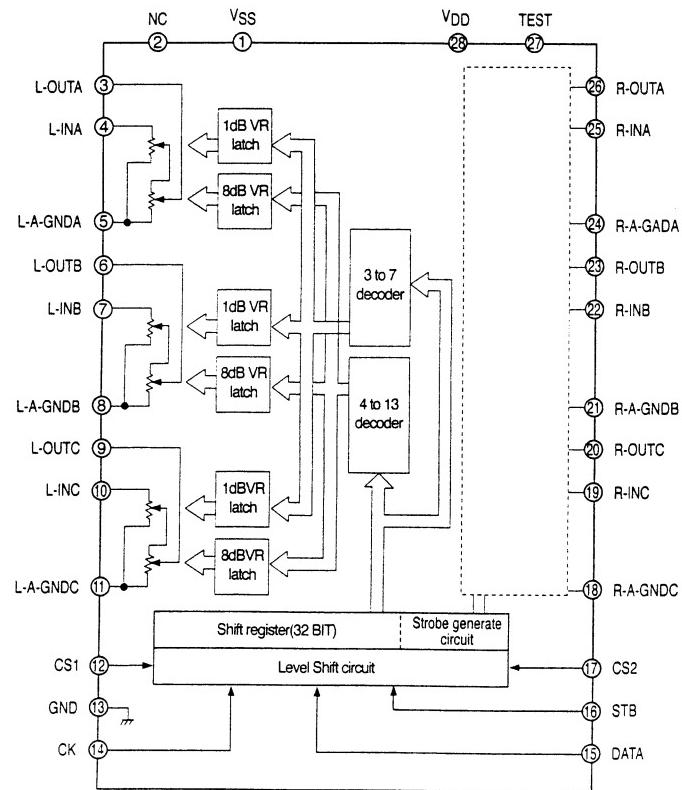


NJU7311AM

• PIN CONNECTIONS

V _{SS}	1	V _{DD}
NC	2	TEST
L-OUTA	3	R-OUTA
L-INB	4	R-INA
L-A-GNDA	5	R-A-GNDA
L-OUTB	6	R-OUTB
L-INB	7	R-INB
L-A-GNDB	8	R-A-GNDB
L-OUTC	9	R-OUTC
L-INC	10	R-INC
L-A-GNDC	11	R-A-GNDC
CS1	12	CS2
GND	13	STB
CK	14	DATA

• BLOCK DIAGRAM



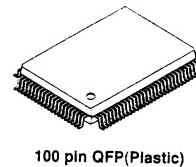
• PIN DESCRIPTION

PIN No.	SYMBOL	PIN NAME	FUNCTION	REMARK		
1	V _{SS}	Negative power supply pin	Power Supply Pins	-		
28	V _{DD}	Positive power supply pin				
3		L-OUTA	Volume output pin	Volume circuit		
6		L-OUTB				
22		R-OUTB				
9		L-OUTC				
19		R-OUTC				
4		L-INA				
25		R-INA	Volume input pin	OUTX INX (VR1) 20kΩ (VR2) 50Ω		
7		L-INB				
22		R-INB				
10		L-INC				
19		R-INC				
5		L-A-GNDA				
24		R-A-GNDA	Analog GND pin	-		
8		L-A-GNDB				
21		R-A-GNDB				
11		L-A-GNDC				
18		R-A-GNDC				
12	CS1	Chip select input pin			Up to 4 chips on the same bus can be used by switching over chip select code.	-
17	CS2			-		
14	CK	Clock input pin	Inputs clock for serial data transfer.	Low threshold value input pin		
15	DATA	Data input pin	Inputs control data for setting volume.			
16	STB	Strobe input pin	Inputs strobe for writing data.			
13	GND	Digital GND pin	Digital ground pin			
27	TEST	Test pin	Normally connect to V _{DD} pin.	-		
2	NC	No Connection	-	-		

■ CXP 82860 (CMOS 8 bit Single Chip Microcomputer)

• DESCRIPTION

The CXP82832/82840/82852/82860 is a CMOS 8-bit single chip microcomputer integrating on a single chip an A/D converter, serial interface, timer/counter, time base timer, capture timer/counter, fluorescent display panel controller/driver, remote control reception circuit, and PWM output besides the basic configurations of 8-bit CPU, ROM, RAM, and I/O port. The CXP82832/82840/82852/82860 also provides sleep/stop function that enables lower power consumption.



100 pin QFP(Plastic)

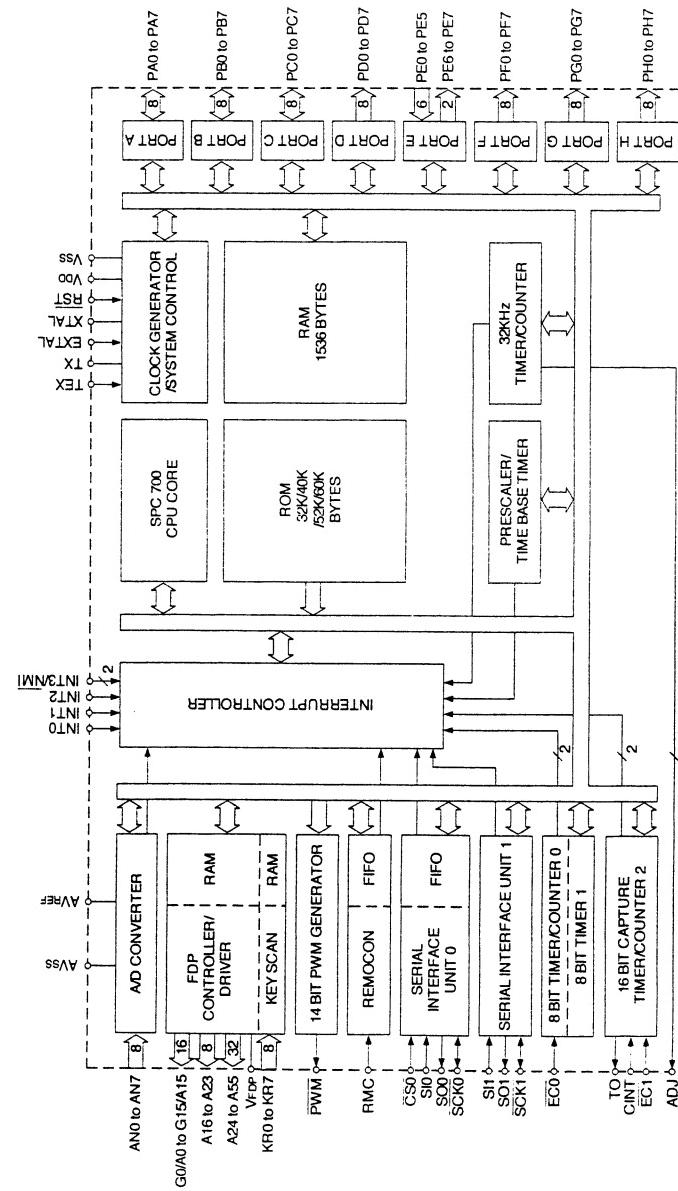
• Structure

Silicon gate CMOS IC

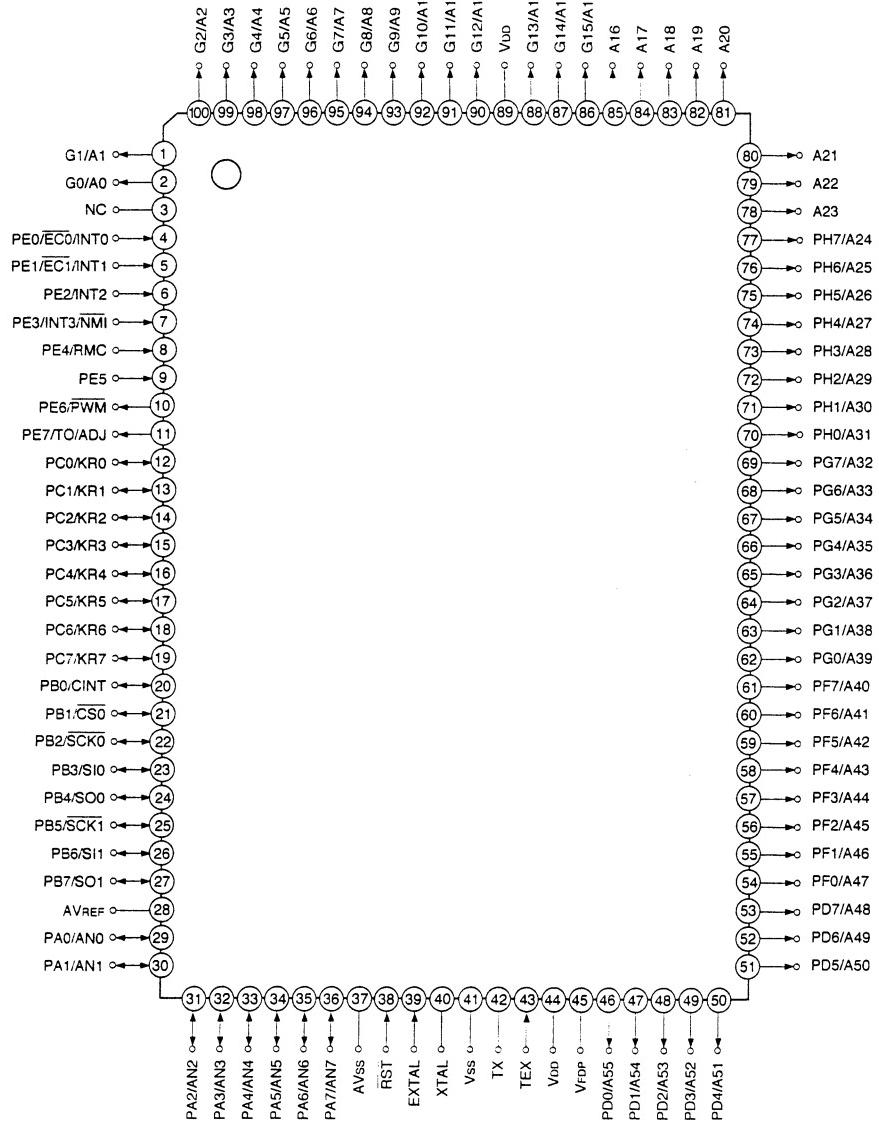
• Features

- Wide-range instruction system (213 instructions) to cover various types of data
 - 16-bit arithmetic/multiplication and division/boolean bit operation instructions
- Minimum instruction cycle 400ns at 10MHz operation
(122 μ s at 32kHz operation)
- Incorporated ROM capacity 32K bytes(CXP82832)
40K bytes (CXP82840)
52K bytes (CXP82852)
60K bytes (CXP82860)
- Incorporated RAM capacity 1536 bytes (including fluorescent display area)
- Peripheral functions
 - A/D converter
 - Serial interface
 - Timers
 - Fluorescent display panel controller/driver
 - Supports the universal grid fluorescent display panel.
 - High voltage drive output port of 56 pins (40V)
 - Maximum of 640 segments display possible
 - Display timing number of 1 to 20
 - Dimmer function
 - Incorporated pull-down resistor (Mask option)
 - Hardware key scan function (Maximum of 16 x 8 key matrix supportable)
 - 8-bit pulse measurement counter, 6-stage FIFO
 - 14 bits, 1 channel
 - Remote control reception circuit
 - PWM output
- Interruption
- Standby mode
- Package
- Piggyback/evaluation chip

• BLOCK DIAGRAM



• Pin Assignment(Top View)



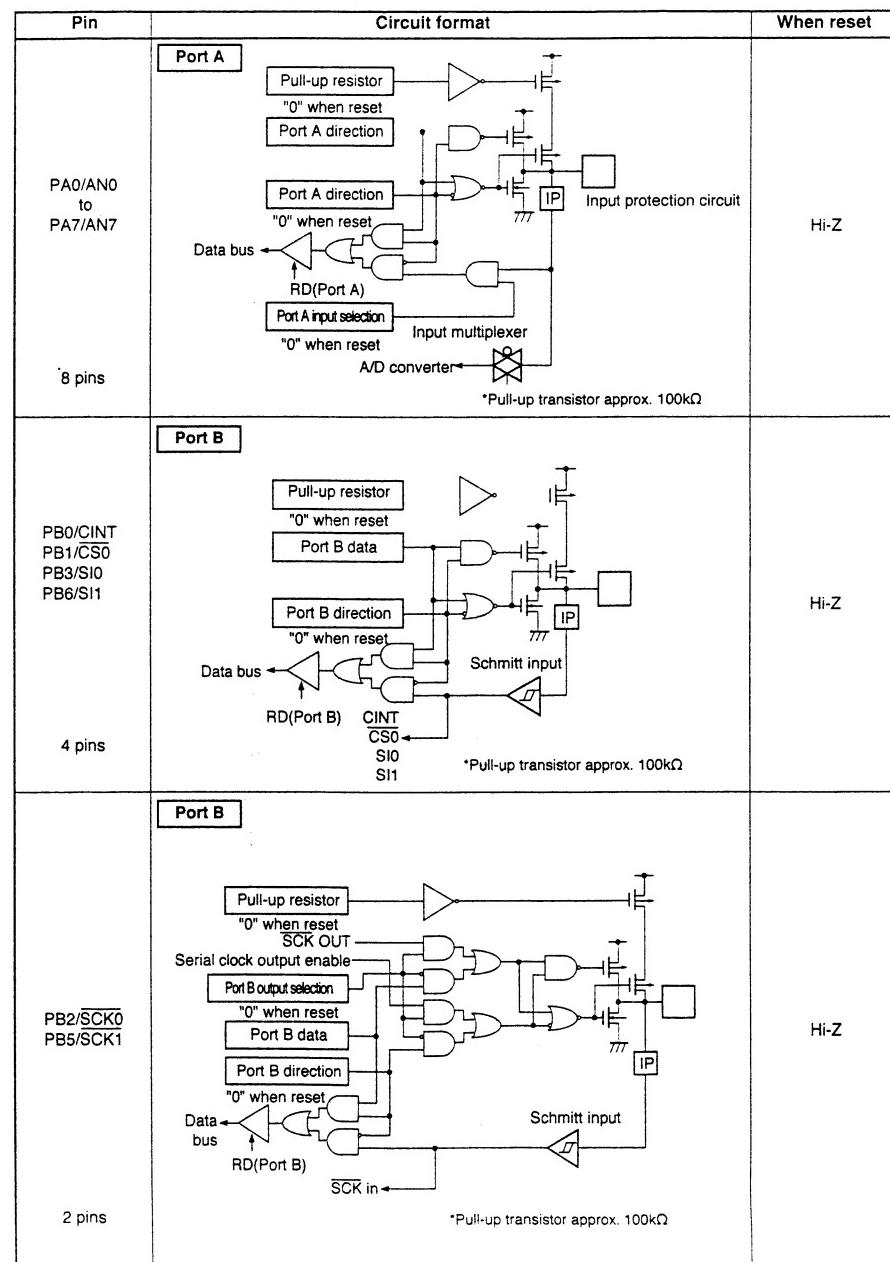
• PIN DESCRIPTION

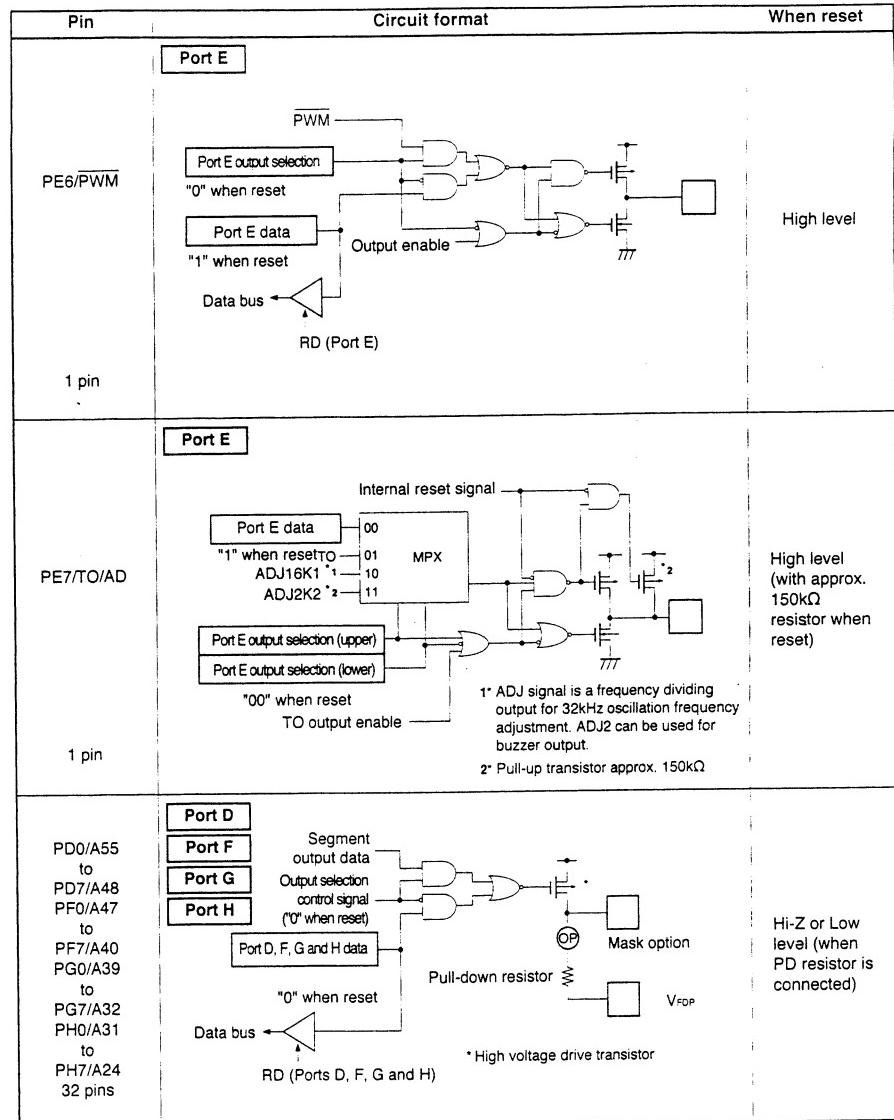
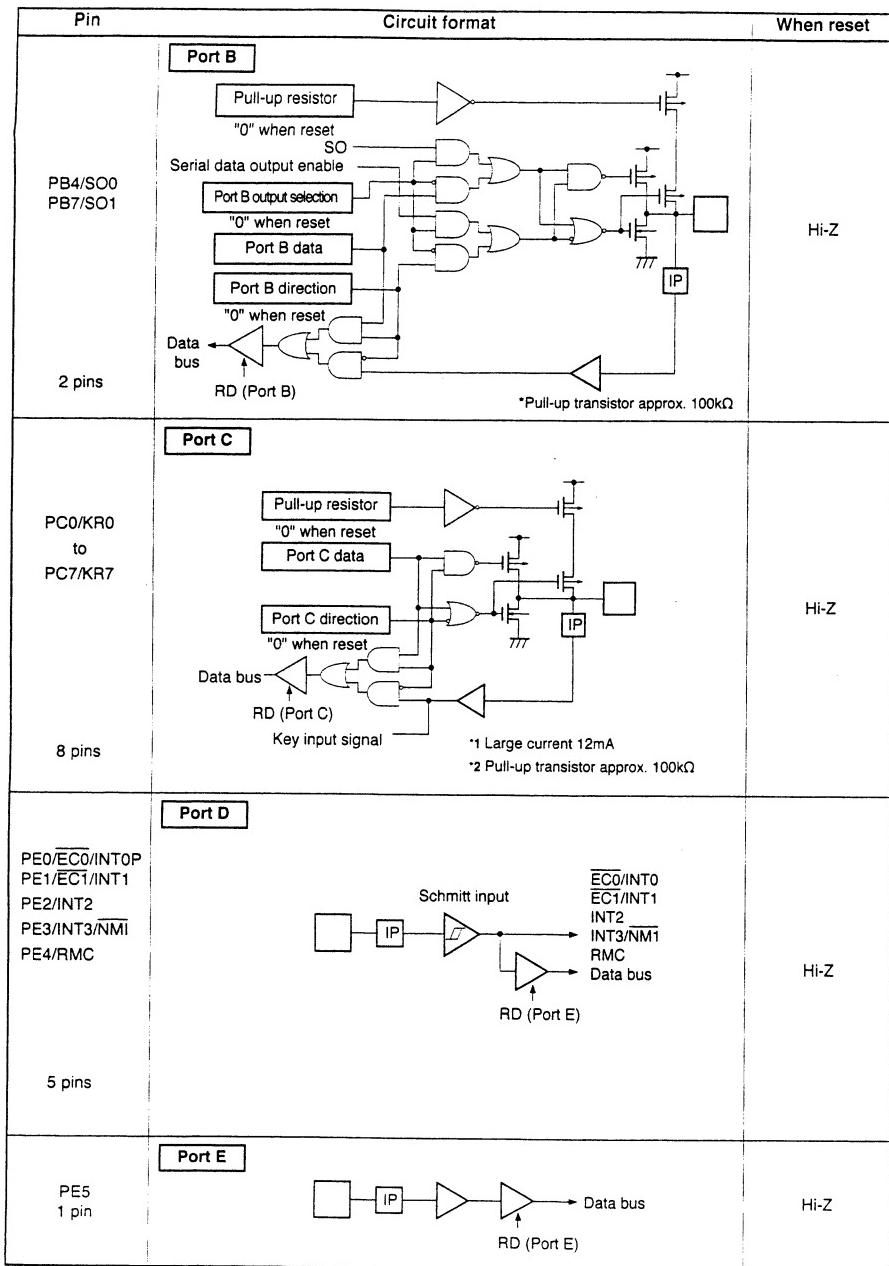
PIN No.	I/O	FUNCTION	
PA0/AN0 to PA7/AN7	I/O/ Analog input	(Port A) 8-bit I/O port. I/O can be set in a unit of single bits. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits. (8pins)	Analog inputs to A/D converter. (8 pins)
PB0/CINT	I/O/Input		Capture input to 16-bit timer/counter.
PB1/CS0	I/O/Input		Chip select input for serial interface (CH0).
PB2/SCK0	I/O/I/O		Serial clock I/O (CH0).
PB3/SI0	I/O/Input		Serial data input (CH0).
PB4/SO0	I/O/Output		Serial data output (CH0).
PB5/SCK1	I/O/I/O		Serial clock I/O (CH1).
PB6/SI1	I/O/Input		Serial data input (CH1).
PB7/SO1	I/O/Output		Serial data output (CH1).
PC0/KR0 to PC7/KR7	I/O/Input	(Port C) 8-bit I/O port. I/O can be set in a unit of single bits. Can drive 12mA sync current. Incorporation of the pull-up resistor can be set through the software in a unit of 4 bits.(8 pins)	Serves as key return inputs when operating key scan with fluorescent display panel (FDP) segment signal. (8 pins)
PD0/A55 to PD7/A48	Output/Output	(Port D) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs.
PE0/INT0/EC0	Input/Input/Input		
PE1/INT1/EC1	Input/Input/Input		Inputs for external event inputs for timer/counter. (2 pins)
PE2/INT2	Input/Input		
PE3/INT3/NMI	Input/Input/Input		Non-maskable interruption request input.
PE4/RMC	Input/Input		
PE5	Input		Remote control reception circuit input.
PE6/PWM	Output/Output		14-bit PWM output.
PE7/TO/ADJ	Output/Output/Output		Output for the 16-bit timer/counter rectangular waves, and 32kHz oscillation frequency division.
PF0/A47 to PF7/A40	Output/Output	(Port F) 8-bit output port. (8pins)	FDP segment signal (anode connection) outputs.

Note) 1. NC (Pin 3) must be connected to Vdd.
2. Vdd (Pins 44 and 89) must be connected to Vdd.

PIN No.	I/O	FUNCTION	
PG0/A39 to PG7/A32	Output/Output	(Port G) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs. (8 pins)
PH0/A31 to PH7/A24	Output/Output	(Port H) 8-bit output port. (8 pins)	FDP segment signal (anode connection) outputs. (8 pins)
A16 to A23	Output	FDP segment signal (anode connection) outputs. (8 pins)	
G0/A0 to G15/A15	Output/Output	Outputs for FDP timing signals (grid connection)/segment signals (anodeconnection). (16 pins)	
V _{FDP}		FDP voltage supply when incorporated pull-down (PD) resistor is set by mask option.	
EXTAL	Input	Crystal connectors for system clock oscillation. When the clock is supplied externally, input to EXTAL; opposite phase clock should be input to XTAL.	
XTAL	Output		
TEX	Input	Crystal connectors for 32kHz timer/counter clock oscillation. For usage as event input, input to TEX, and open TX.	
TX	Output		
RST	Input	Low-level active, system reset	
NC		NC. Under normal operation, connect to V _{DD} .	
AVREF	Input	Reference voltage input for A/D converter.	
AVss		A/D converter GND.	
V _{DD}		Vcc supply.	
V _{SS}		GND.	

• I/O Circuit Format for Pins





Pin	Circuit format	When reset
A16 to A23 8 pins	<p>Segment output data</p> <p>Output selection control signal ("0" when reset)</p> <p>Mask option (OP)</p> <p>Pull-down resistor</p> <p>V_{FDP}</p> <p>* High voltage drive transistor</p>	Hi-Z or Low level (when PD resistor is connected)
G0/A0 to G15/A15 16 pins	<p>Segment output data</p> <p>Timing output data</p> <p>Output selection control signal ("0" when reset)</p> <p>Mask option (OP)</p> <p>Pull-down resistor</p> <p>V_{FDP}</p> <p>* High voltage drive transistor</p>	Hi-Z or Low level (when PD resistor is connected)
EXTAL XTAL 2 pins	<p>EXTAL</p> <p>XTAL</p> <p>• Diagram shows circuit composition during oscillation.</p> <p>• Feedback resistor is removed and XTAL becomes High level during stop.</p>	Oscillation
TEX TX 2 pins	<p>TEX</p> <p>TX</p> <p>• Diagram shows circuit composition during oscillation.</p> <p>• When the operation of the oscillation circuit is stopped by the software, the feedback resistor is removed, and TEX and TX become Low level and High level respectively.</p>	Oscillation
RST 1pin	<p>Pull-up resistor</p> <p>Mask option (OP)</p> <p>Schmitt input</p>	Low level

Absolute Maximum Ratings

(V_{SS} = 0V reference)

Item	Symbol	Rating	Unit	Remarks
Supply voltage	V _{DD}	-0.3 to +7.0	V	
A/D converter GND voltage	A/V _{SS}	-0.3 to +0.3	V	
A/D converter reference voltage	A/V _{REF}	-0.3 to +7.0 ¹	V	
FDP display supply voltage	V _{FDP}	-40 ² to +7.0 ¹	V	
Input voltage	V _{IN}	-0.3 to +7.0 ¹	V	
Output voltage	V _{OUT}	-0.3 to +7.0 ¹	V	
Display output voltage	V _{DD}	-40 ² to +7.0 ¹	V	
	I _{OH}	-5	mA	All pins excluding outputs ³ (value per pin)
High level output current	I _{ODH1}	-15	mA	Display outputs A20 to A55 (value per pin)
	I _{ODH2}	-50	mA	Display outputs G0/A0 to G15/A15, and A16 to A19 (value per pin)
High level total output current	ΣI_{OH}	-30	mA	Total for all pins excluding display outputs
	ΣI_{ODH}	-120	mA	Total for all display outputs
Low level output current	I _{OL}	15	mA	Port (value per pin)
	I _{OLC}	20	mA	Large current port (value per pin) ⁴
Low level total output current	ΣI_{OL}	100	mA	Total for all output pins
Operating temperature	T _{OPR}	-20 to +75	°C	
Storage temperature	T _{STG}	-55 to +150	°C	
Allowable power dissipation	P _D	600	mW	

¹ V_{IN}, V_{OUT}, V_{DD} and A/V_{REF} must not exceed V_{DD} + 0.3V.

² V_{FDP} and V_{DD} must not exceed V_{DD} - 40V.

³ Specifies output current of general-purpose I/O ports.

⁴ The large current drive transistor is the N-CH transistor of Port C (PC).

Note) Usage exceeding absolute maximum ratings may permanently impair the LSI. Normal operation should be conducted under the recommended operating conditions. Exceeding these conditions may adversely affect the reliability of the LSI.

• Recommended Operating Conditions

(V_{SS} = 0V reference)

Item	Symbol	Min.	Max.	Unit	Remarks
Supply voltage	V _{DD}	4.5	5.5	V	Guaranteed operation range during high-speed mode (1/2 and 1/4 frequency dividing clock)
		3.5	5.5	V	Guaranteed operation range low-speed mode or SLEEP mode (1/16 frequency dividing clock)
		2.7	5.5	V	Guaranteed operation range with TEX clock
		2.5	5.5	V	Guaranteed data hold range during STOP
High level input voltage	V _{IH}	0.7V _{DD}	V _{DD}	V	*1
	V _{IHS}	0.8V _{DD}	V _{DD}	V	Hysteresis input *2
	V _{IHEX}	V _{DD} - 0.4	V _{DD} + 0.3	V	EXTAL *3
Low level input voltage	V _{IL}	0	0.3V _{DD}	V	*1
	V _{ILS}	0	0.2V _{DD}	V	Hysteresis input *2
	V _{ILEX}	-0.3	0.4	V	EXTAL *3
Operating temperature	T _{OPR}	-20	+75	°C	

*1 Value for each pin of normal input port (PA, PB4, PB7, PC).

*2 Value of the following pins: RST, CINT, CS0, SCK0, SCK1, SI0, SI1, EC0/INT0, EC1/INT1, INT2, INT3/NMI, RMC.

*3 Specifies only during external clock input.

■ Electrical Characteristics

• DC Characteristics

(Ta = -20 to +75°C, V_{SS} = 0V reference)

Item	Symbol	Pins	Conditions	Min.	Typ.	Max.	Unit
High level output current	I _{OH}	PA, PB, PC, PE6, PE7	V _{DD} = 4.5V, I _{OH} = -0.5mA	4.0			V
			V _{DD} = 4.5V, I _{OH} = -1.2mA	3.5			V
Low level output current	I _{OL}	PC	V _{DD} = 4.5V, I _{OL} = 1.8mA			0.4	V
			V _{DD} = 4.5V, I _{OL} = 3.6mA			0.6	V
			V _{DD} = 4.5V, I _{OL} = 12.0mA			1.5	V
Input current	I _{IE}	EXTAL	V _{DD} = 5.5V, V _{IH} = 5.5V	0.5		40	μA
	I _{IL}		V _{DD} = 5.5V, V _{IL} = 0.4V	-0.5		-40	μA
	I _{HT}	TEX	V _{DD} = 5.5V, V _{IL} = 5.5V	0.1		10	μA
	I _{LT}		V _{DD} = 5.5V, V _{IL} = 0.4V	-0.1		-10	μA
	I _{LR}	RST *1	V _{DD} = 5.5V, V _{IL} = 0.4V	-1.5		-400	μA
	I _{LL}	PA to PC*2	V _{DD} = 4.5V, V _{IL} = 4.0V			-50	μA
Display output current	I _{OH}	A20 to A55	V _{DD} = 4.5V V _{OH} = V _{DD} - 2.5V	-8			mA
Open drain output leakage current (P-CH Tr off state)	I _{OL}	G0/A0 to G15/A15 A16 to A55	V _{DD} = 5.5V V _{OL} = V _{DD} - 35V V _{FDP} = V _{DD} - 35V			-20	μA
Pull-down resistor *3	R _L	G0/A0 to G15/A15 A16 to A55	V _{DD} = 5V V _{OD} = V _{FDP} = 30V	60	100	270	kΩ
I/O leakage current	I _{IZ}	PA to PC*2 PE0 to PE5 RST*1	V _{DD} = 5.5V V _I = 0, 5.5V			±10	μA

Item	Symbol	Pins	Conditions	Min.	Typ.	Max.	Unit
Power supply current ^{*4}	I _{DD1}	V _{DD}	High speed mode operation (1/2 frequency dividing clock)	23 (19)	50 (40)	mA	
	I _{DD2}		V _{DD} = 5.5V, 10MHz crystal oscillation (C ₁ = C ₂ = 15pF)				
	I _{DD3}		V _{DD} = 3V, 32kHz crystal oscillation (C ₁ = C ₂ = 47pF)	44 (37)	100	μA	
	I _{DD5}		SLEEP mode	2.3 (2.1)	8	mA	
	I _{DD6}		V _{DD} = 5.5V, 10MHz crystal oscillation (C ₁ = C ₂ = 15pF)				
	I _{DD7}		V _{DD} = 3V, 32kHz crystal oscillation (C ₁ = C ₂ = 47pF)	10	30	μA	
Input capacity	C _{IN}	PA to PC, PE0 to 5, XTAL, EXTAL, TEX,RST	Clock 1MHz 0V for all pins excluding measured pins	10	20	pF	

^{*1} RST specifies the input current when pull-up resistor has been selected; leakage current when no resistor has been selected.

^{*2} PA to PC pins specify the input current when pull-up resistor has been selected; leakage current when no resistor has been selected.

^{*3} When incorporated pull-down resistor has been selected through mask option.

^{*4} When all pins are open.

Note) The values in paren thesis are for the CXP82832 and CXP82840.

■ AC Characteristics

• Clock timing

(Ta = -20 to +75°C, V_{DD} = 4.5 to 5.5V, V_{SS} = 0V reference)

Item	Symbol	Pin	Conditions	Min.	Typ.	Max.	Unit
System clock frequency	f _C	XTAL	Fig. 1, Fig. 2	1		10	MHz
System clock input pulse width	t _{XL} t _{XH}	EXTAL	Fig. 1, Fig. 2 External clock drive	37.5			ns
System clock input rise time, fall time	t _{CR} t _{CF}	EXTAL	Fig. 1, Fig. 2 External clock drive	t _{sys} +50 ^{*1}		200	ns
Event count input clock	t _{EH} t _{EL}	E _{C0} , E _{C1}	Fig. 3				ns
Event count input clock rise time, fall time	t _{ER} t _{EF}	E _{C0} , E _{C1}	Fig. 3			20	ms
System clock frequency	f _C	TEX	V _{DD} = 2.7 to 5.5V Fig. 2 (32kHz clock applied condition)		32.768		kHz
Event count input pulse width	t _{TL} t _{TH}	TEX	Fig. 3	10			μs
Event count input rise time, fall time	t _{TR} t _{TF}	TEX	Fig. 3			20	ms

^{*1} t_{sys} indicates the three values below according to the upper two bits (CPU clock selection) of the control clock register (CLC:00FEH).

t_{sys} (ns) = 2000/f_C (upper two bits = "00"), 4000/f_C (upper two bits = "01"), 16000/f_C (upper two bits = "11")

Fig. 1. Clock timing

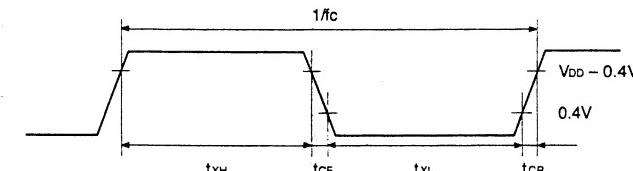


FIG. 2. Clock applied conditions

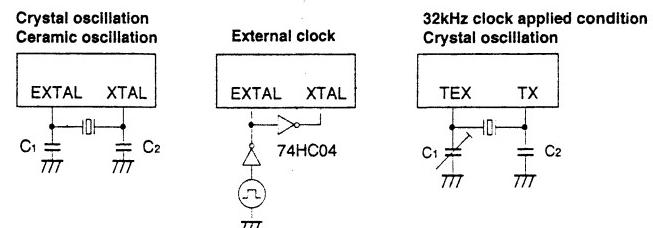
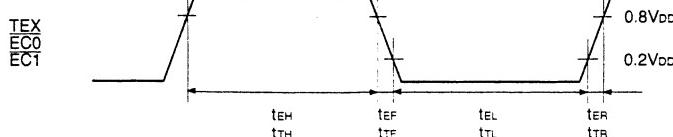


Fig. 3. Event count clock timing



• Serial transfer (CH0)

($T_a = -20$ to $+75^\circ\text{C}$, $V_{DD} = 4.5$ to 5.5V , $V_{SS} = 0\text{V}$ reference)

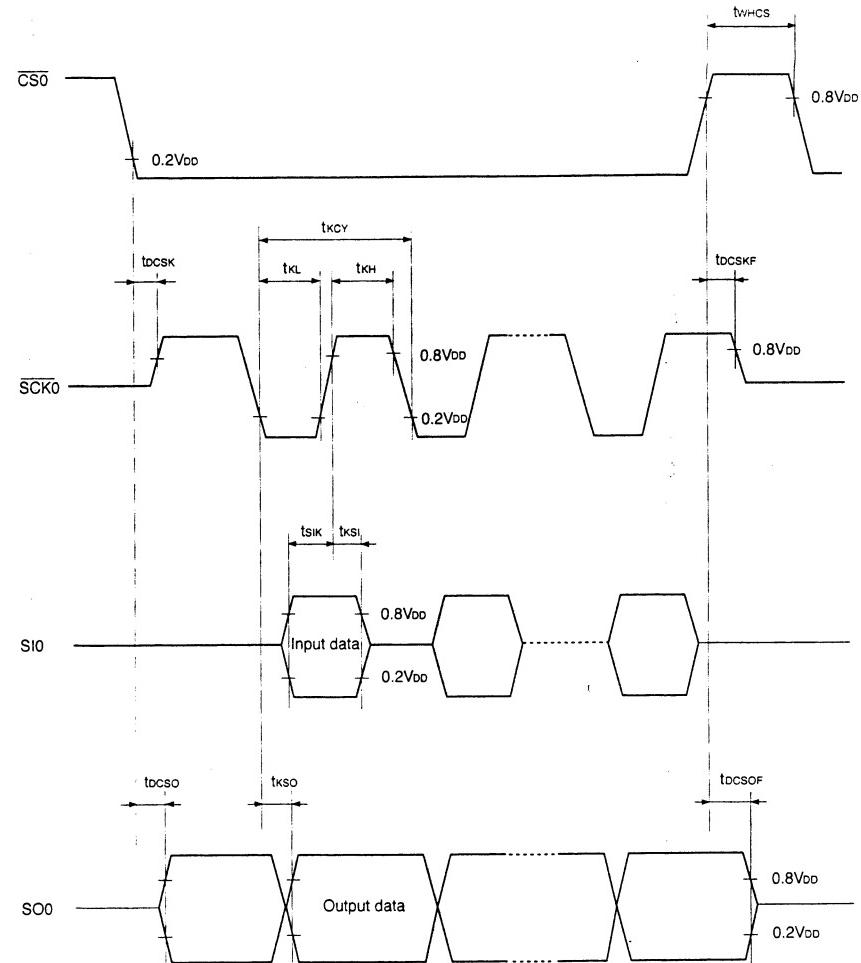
Item	Symbol	Pins	Conditions	Min.	Max.	Unit
$\overline{CS}_0 \rightarrow \overline{SCK}_0$ delay time	t _{bcsk}	\overline{SCK}_0	Chip select transfer mode (SCK_0 = output mode)		t _{sys} + 200	ns
$\overline{CS}_0 \downarrow \rightarrow \overline{SCK}_0$ float delay time	t _{bcskf}	\overline{SCK}_0	Chip select transfer mode (SCK_0 = output mode)		t _{sys} + 200	ns
$\overline{CS}_0 \downarrow \rightarrow SO_0$ delay time	t _{bcs0}	SO ₀	Chip select transfer mode		t _{sys} + 200	ns
$\overline{CS}_0 \downarrow \rightarrow SO_0$ float delay time	t _{bcs0f}	SO ₀	Chip select transfer mode		t _{sys} + 200	ns
\overline{CS}_0 High level width	t _{whcs}	\overline{CS}_0	Chip select transfer mode	t _{sys} + 200		ns
SCK_0 cycle time	t _{kcy}	\overline{SCK}_0	Input mode	2t _{sys} + 200		ns
			Output mode	16000/f _c		ns
SCK_0 High, Low level width	t _{kH} t _{kL}	\overline{SCK}_0	Input mode	t _{sys} + 100		ns
			Output mode	8000/f _c - 50		ns
SI ₀ input set-up time (for SCK_0^-)	t _{tsk}	SI ₀	SCK_0 input mode	100		ns
			SCK_0 output mode	200		ns
SI ₀ input hold time (for SCK_0^+)	t _{tsl}	SI ₀	SCK_0 input mode	t _{sys} + 200		ns
			SCK_0 output mode	100		ns
$\overline{SCK}_0 \downarrow \rightarrow SO_0$ delay time	t _{ks0}	SO ₀	SCK_0 input mode		t _{sys} + 200	ns
			SCK_0 output mode		100	ns

Note 1) t_{sys} indicates the three values below according to the upper two bits (CPU clock selection) of the control clock register (CLC: 00FEH).

t_{sys} (ns) = 2000/f_c (upper two bits = "00"), 4000/f_c (upper two bits = "01"), 16000/f_c (upper two bits = "11")

Note 2) The load condition for the \overline{SCK}_0 output mode, SO₀ output delay time is 50pF + 1TTL.

Fig. 4. Serial transfer CH0 timing



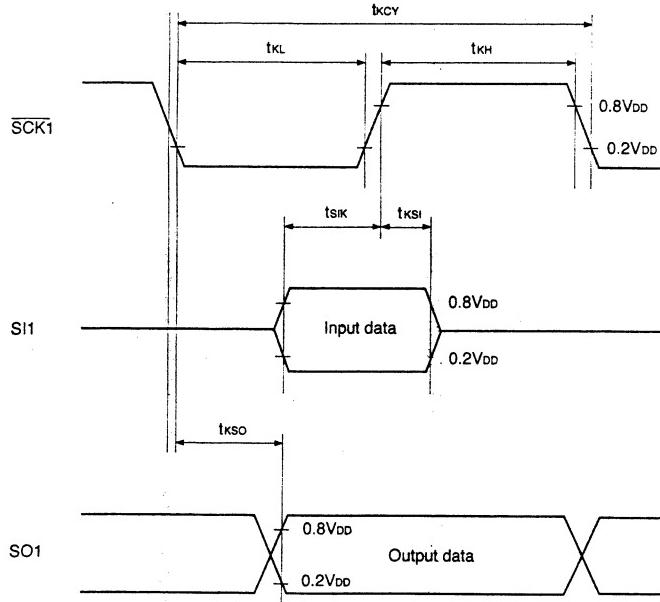
• Serial transfer (CH1)

($T_a = -20$ to $+75^\circ\text{C}$, $V_{DD} = 4.5$ to 5.5V , $V_{SS} = 0\text{V}$ reference)

Item	Symbol	Pins	Conditions	Min.	Max.	Unit
SCK1 cycle time	t _{CKY}	SCK1	Input mode	1000		ns
			Output mode	16000/f _c		ns
SCK1 High, Low level width	t _{KL}	SCK1	Input mode	400		ns
			Output mode	8000/f _c - 50		ns
SI1 input set-up time (for SCK1 ↑)	t _{SIK}	SI1	SCK1 input mode	100		ns
			SCK1 output mode	200		ns
SI1 input hold time (for SCK1 ↑)	t _{KSI}	SI1	SCK1 input mode	200		ns
			SCK1 output mode	100		ns
SCK1 ↓ → SO1 delay time	t _{KSO}	SO1	SCK1 input mode		200	ns
			SCK1 output mode		100	ns

Note) The load condition for the SCK1 output mode, SO1 output delay time is 50pF + 1TTL.

Fig. 5. Serial transfer CH1 timing

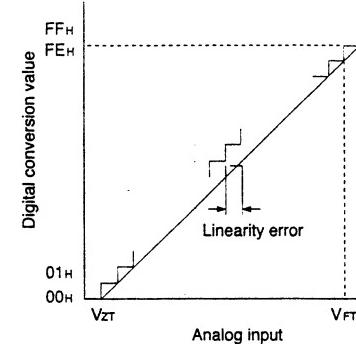


• A/D converter characteristics

($T_a = -20$ to $+75^\circ\text{C}$, $V_{DD} = 4.5$ to 5.5V , $A_{REF} = 4.0$ to V_{DD} , $V_{SS} = A_{VSS} = 0\text{V}$ reference)

Item	Symbol	Pins	Conditions	Min.	Typ.	Max.	Unit
Resolution					8		Bits
Linearity error							± 3 LSB
Zero transition voltage	V _{ZT} *1		$T_a = 25^\circ\text{C}$ $V_{DD} = A_{REF} = 5.0\text{V}$ $V_{SS} = A_{VSS} = 0\text{V}$	-10	10	70	mV
				4910	4970	5030	mV
				160/f _{ADC} *3			μs
Full-scale transition voltage	V _{FT} *2			12/f _{ADC} *3			μs
Conversion time	t _{CONV}						
Sampling time	t _{SAMP}						
Reference input voltage	V _{REF}	A _{VREF}		V _{DD} - 0.5			V
Analog input voltage	V _{AN}	AN0 to AN7		0		A _{VREF}	V
A _{VREF} current	I _{REF}	A _{VREF}	Operation mode		0.6	1.0	mA
	I _{REFS}		SLEEP mode STOP mode 32kHz operation mode			10	μA

Fig. 6. Definition of A/D converter terms



*1 V_{ZT}: Value at which the digital conversion value changes from 00H to 01H and vice versa.

*2 V_{FT}: Value at which the digital conversion value changes from FEH to FFH and vice versa.

*3 f_{ADC} indicates the below values due to the contents of bit 6 (CKS) of A/D control register (ADC: 00F9H) and bits 7 (PCK1) and 6 (PCK0) of clock control register (CLC: 00FEH).

CKS PCK1, PCK0	0 ($\emptyset/2$ selection)	1 (\emptyset selection)
00 ($\emptyset = f_{ex}/2$)	f _{ADC} = f _c /2	f _{ADC} = f _c
01 ($\emptyset = f_{ex}/4$)	f _{ADC} = f _c /4	f _{ADC} = f _c /2
11 ($\emptyset = f_{ex}/16$)	f _{ADC} = f _c /16	f _{ADC} = f _c /8

• Interruption, reset input

(Ta = -20 to +75°C, V_{DD} = 4.5 to 5.5V, V_{SS} = 0V reference)

Item	Symbol	Pin	Condition	Min.	Max.	Unit
External interruption High, Low level width	t _{IH} t _{IL}	INT0 INT1 INT2 NMI/INT3		1		μs
Reset input Low level width	t _{RSL}	RST		32/fc		μs

Fig. 7. Interruption input timing

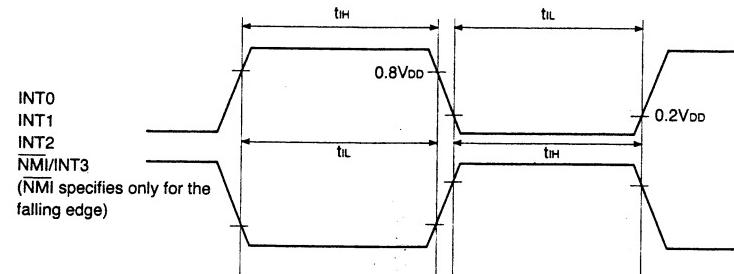


Fig. 8. RST Input timing

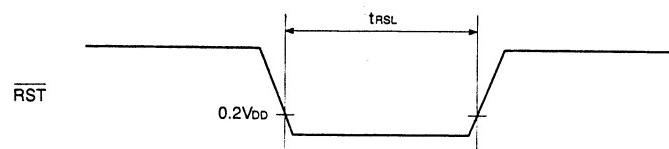
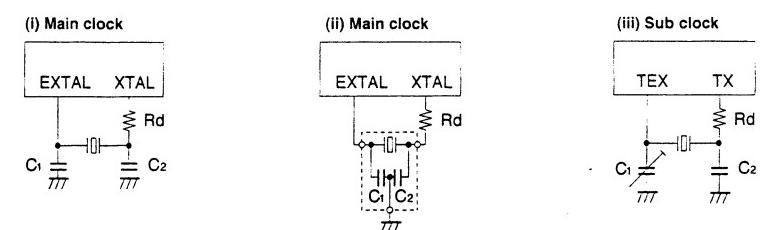


Fig. 9. Recommended oscillation circuit



Manufacturer	Model	f _c (MHz)	C ₁ (pF)	C ₂ (pF)	R _d (Ω)	Circuit example
MURATA MFG CO., LTD.	CSA4.19MG	4.19	30	30	0	(i)
	CSA8.00MTZ	8.00				
	CSA10.0MTZ	10.00				
	CST4.19MGW*	4.19				
	CST8.00MTW*	8.00				
	CST10.0MTW*	10.00				
RIVER ELETEC CO., LTD	HC-49/U03	4.19 8.00 10.00	12	12	0	(i)
	HC-49/U (-S)	4.19 8.00 10.00				
	P3	32.768kHz	50	22	1M	(iii)

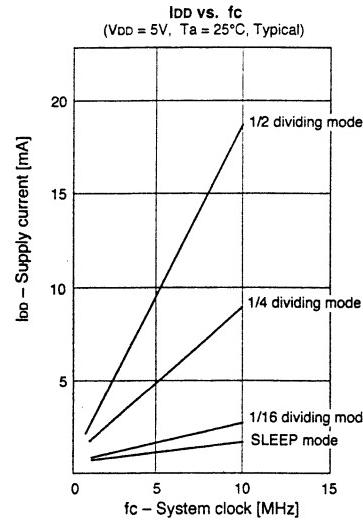
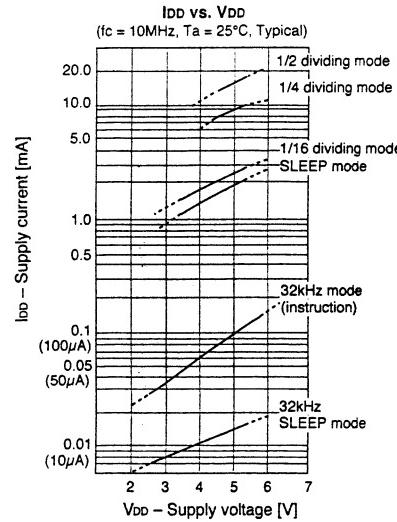
Models marked with an asterisk (*) have the built-in ground capacitance (C₁, C₂).

Mask option table

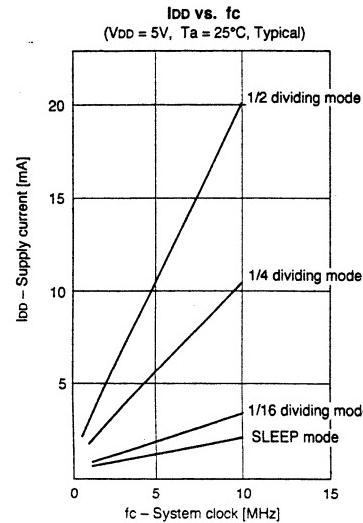
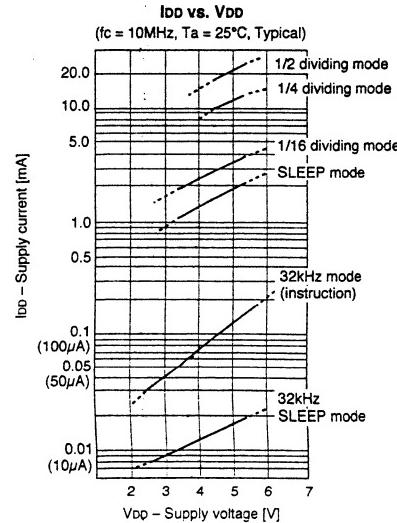
Item	Content		
Reset pin pull-up resistor	Non-existent	Existent	Existent
High voltage drive output port pull-down resistor	Non-existent	Existent	Existent

Characteristics Curve

CXP82832/82840

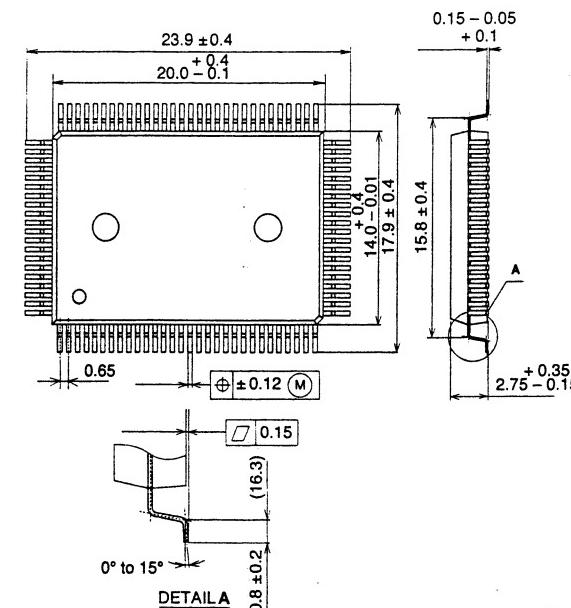


CXP82852/82860



Package Outline

Unit: mm



PACKAGE STRUCTURE

PACKAGE MATERIAL	EPOXY RESIN
LEAD TREATMENT	SOLDER PLATING
LEAD MATERIAL	COPPER / 42 ALLOY
PACKAGE WEIGHT	1.4g

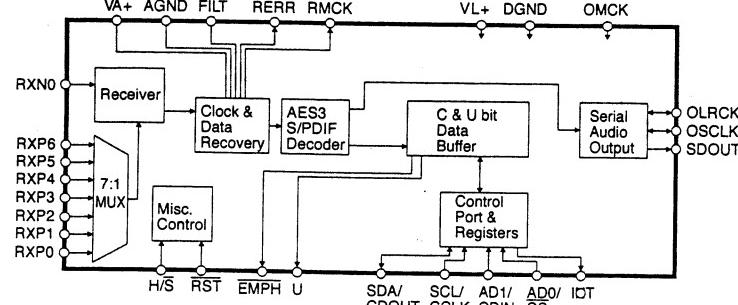
■ CS8415A(96kHz Digital Audio Interface Receiver)

Features

- Complete EIAJ CP1201, IEC-60958, AES3, S/PDIF compatible receiver
- +5V Analog Supply(VA)
- +3V to +5V Digital Interface Supply(VL)
- 7:1 S/PDIF Input MUX
- Flexible 3-wire serial digital output port
- 8kHz to 96 kHz sample frequency range
- Low jitter clock recovery
- Pin and microcontroller read access to Channel Status and User data
- Microcontroller and Standalone modes
- Differential cable receiver
- On-chip Channel Status and User data buffer memories
- Auto-detection of compressed audio input streams
- Decodes CD Q sub-code
- OMCK System Clock Mode

ORDERING INFORMATION

CS8415A-CS	28-pin SOIC	-10 to +70°C
CS8415A-CZ	28-pin TSSOP	-10 to +70°C
CS8415A-IS	28-pin SOIC	-40 to +85°C
CS8415A-IZ	28-pin TSSOP	-40 to +85°C
CD8415A	Evaluation Board	



General Description

The CS8415A is a monolithic CMOS device which receives and decodes one of 7 channels of audio data according to the IEC60958, S/PDIF, EIAJ CP1201, or AES3. The CS8415A has a serial digital audio output port and comprehensive control ability through a 4-wire microcontroller port. Channel status and user data are assembled in block sized buffers, making read access easy.

A low jitter clock recovery mechanism yields a very clean recovered clock from the incoming AES3 stream.

Stand-alone operation allows systems with no microcontroller to operate the CS8415A with dedicated output pins for channel status data.

Target applications include A/V receivers, CD-R, DVD receivers, multimedia speakers, digital mixing consoles, effects processors, set-top boxes, and computer and automotive audio systems.

DSP

입력신호	DVD (DOLBY DIGITAL)
입력방식	OPTIAL
FUCTION	DVD

IC701 CS8415A

1	3.08	11	0	21	1.67
2	3.18	12	0	22	0
3	3.31	13	1.33	23	3.31
4	0.2	14	2.06	24	0
5	2.48	15	0	25	0
6	4.95	16	1.25	26	0
7	0	17	1.25	27	3
8	2.6	18	0	28	0.25
9	3.31	19	0		
10	1.66	20	0		

IC702 74HC244

1	0	11	3.1~3.5
2	0.5~0.7	12	0
3	3.15~3.2	13	4.77
4	4.17~4.37	14	0
5	3.31	15	4.77
6	0	16	2.77~2.97
7	3.31	17	4.53~4.58
8	0	18	0.36~0.46
9	2.19~2.4	19	0
10	0	20	3.31

IC703 74VHCT244

1	0	11	0
2	1.95~2.09	12	4.36
3	4.96	13	0
4	3.3	14	1.15~1.4
5	0	15	0
6	1.66	16	4.38
7	0	17	2.47
8	3.09	18	3.37~3.61
9	0	19	0
10	0	20	4.97

IC704 CS493263

1	2.48	11	2.48	21	2.46	31	0	41	0
2	0.03	12	2.48	22	0.22	32	0	42	0
3	1.25	13	0.03	23	2.48	33	0	43	2.83
4	0	14	0.48	24	0.03	34	0	44	1.65
5	2.48	15	2.48	25	1.25	35	0		
6	0	16	2.48	26	1.25	36	3.3		
7	0.37~0.5	17	2.48	27	0.96	37	2.49		
8	2.48	18	2.1	28	1.25	38	2.51		
9	2.48	19	0	29	1.25	39	2.42		
10	2.48	20	2.46	30	0	40	0		

IC705 CS4228A

1	2.34	11	0	21	4.62
2	2.26	12	0	22	0.02
3	2.26	13	3.3	23	2.31
4	0.02	14	3.3	24	2.31
5	2.87	15	0.05	25	2.31
6	2.85	16	2.01	26	2.31
7	0.02	17	2.39	27	2.31
8	4.62	19	3.59	28	2.31
9	2.51	19	2.4		
10	1.65	20	2.48		

IC711 NJU7311A

1	-15.18	11	-0.04	21	0
2	0	12	0	22	0
3	0	13	0	23	0
4	0	14	0	24	0
5	0	15	0	25	0
6	0	16	0	26	0
7	0	17	0	27	0
8	0	18	0	28	0
9	0	19	0.04	29	0
10	0	20	0	30	15.02

OP-amp NJM4558 IC712 713 714 715 718

1	0
2	0
3	0
4	-15.07
5	0
6	0
7	0
8	14.9

OP-amp NJM072M IC706 707 708 709 710

1	2.09
2	2.09
3	2.09
4	-15.07
5	2.09
6	2.09
7	2.09
8	14.9

IC716 NJM2391DL1-33 IC717 NJM2391DL1-25

1	5
2	0
3	3.3

1	5
2	0
3	2.51

Q701, 702, 703 KRA101M

E	4.71	0.08
B	4.71	
	DVD play	DVDstop

AUDIO

입력신호	無
입력방식	Analog
Fuction	CD

IC101 NJU7312A

1	-15.2	11	0	21	0
2	0	12	0	22	0
3	0	13	0	23	0
4	0	14	0	24	0
5	0	15	0	25	0
6	0	16	0	26	0
7	0	17	0	27	0
8	0	18	0	28	0
9	0	19	0	29	0
10	0	20	0	30	15

IC105 NJU7313A

1	-15.2	11	0	21	0
2	0	12	0	22	0
3	0	13	0	23	0
4	0	14	0	24	0
5	0	15	0	25	0
6	0	16	0	26	0
7	0	17	0	27	0
8	0	18	0	28	0
9	0	19	0	29	0
10	0	20	0	30	15

IC106 NJU7311A

1	-15.2	11	0	21	0
2	0	12	0	22	0
3	0	13	0	23	0
4	0	14	0	24	0
5	0	15	0	25	0
6	0	16	0	26	0
7	0	17	0	27	0
8	0	18	0	28	0
9	0	19	0	29	0
10	0	20	0	30	15

IC110 TC9482F

1	-15.2	11	0	21	0
2	0	12	0	22	0
3	0	13	0	23	0
4	0	14	0	24	0
5	0	15	4.95	25	0
6	0	16	0	26	0
7	0	17	0	27	15
8	0	18	0	28	15
9	0	19	0	29	0
10	0	20	0	30	

OP-amp NJM4558 IC120 103 104 107 108 109 111 112 113 114

1	0
2	0
3	0
4	-15.15
5	0
6	0
7	0
8	15

IC115 NJM4558

1	0
2	0
3	0
4	-15.07
5	0.25
6	14.5
7	14.5
8	14.9

Q115 KRC101M Q112 KTA1266

E	0	0	E	0	1.13
B	4.85	0	B		0.47
C	0	1.13	C	-0.09	1.03
MUTE OFF	MUTE ON		MUTE OFF	MUTE ON	

다른 라인의 MUTE Tr도 동일

FRONT

입력신호	無
입력방식	Analog
Fuction	CD

IC901 CXP82860

1	-25.6	11	0	21	5	31	0	41	0
2	-25.6	12	0	22	0	32	4.9	42	4.9
3	4.9	13	0	23	0	33	4.9	43	0
4	1.9~2.1	14	4.9	24	4.1	34	0	44	4.9
5	1.9	15	0	25	4.1	35	4.7	45	-27.6
6	4	16	0	26	4.4	36	0	46	4.8
7	4	17	0	27	2.3	37	0	47	4.8
8	0	18	0	28	4.9	38	4.9	48	4.8
9	5.1	19	0	29	0	39	2.3	19	0
10	4.8	20	5	30	2.6	40	2.6	50	4.8
51	0	61	4.9	71	-24.9	81	-26.7	91	-25.6
52	0	62	4.8	72	-25	82	-25.1	92	-25.6
53	4.7	63	4.8	73	-22.8	83	-23.3	93	-25.6
54	0	64	0	74	-22.7	84	-23.4	94	-25.6
55	0	65	0	75	-22.7	85	-26	95	-25.6
56	4.9	66	0	76	-22.6	86	-25.7	96	-25.6
57	0	67	-27.3	77	-26.8	87	-25.7	97	-25.6
58	0	68	-27.3	78	-24.5	88	-25.7	98	-25.6
59	0	69	-27.3	79	-26.7	89	4.9	99	-25.6
60	0	70	-27.4	80	-26.7	90	-25.6	100	-25.6

IC902 NJU371G

1	0	11	4.6
2	0	12	4
3	0	13	0
4	0	14	0
5	0	15	0
6	4.5	16	0
7	0	17	0
8	0	18	4.8
9	0		
10	0		

OP-amp NJM4558 IC903 904 905

1	0
2	0
3	0
4	-15
5	0
6	0
7	0
8	14.9

VIDEO ASS' Y

IC351 NJM2296

1	0	11	0
2	4.93	12	0
3	0	13	0
4	0	14	0
5	0	15	0
6	0	16	4.91
7	0		
8	-4.96		
9	0		
10	0		

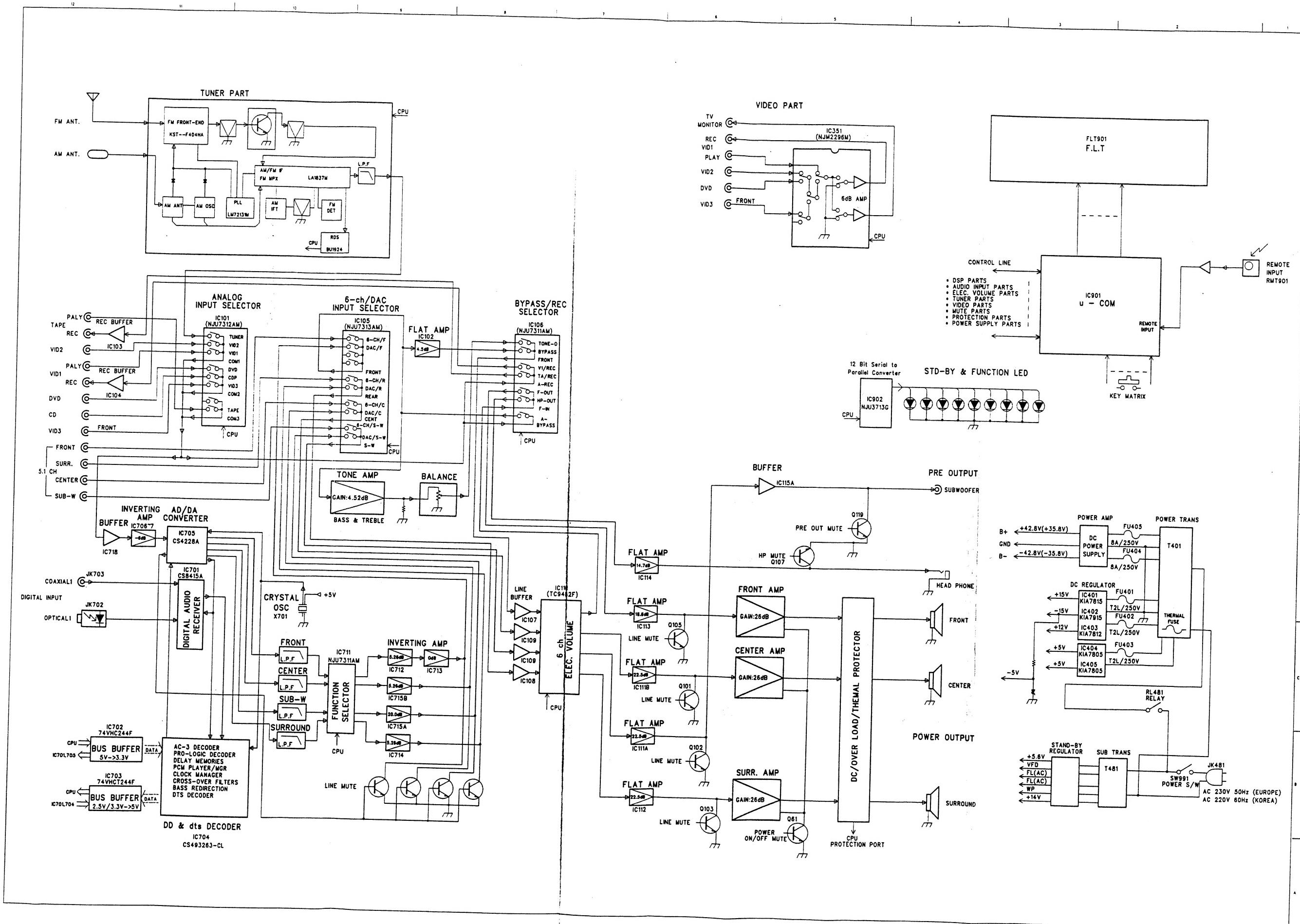
SUB-POWER

IC481 KIA7805API

I	14.2
O	5.7
G	0.6

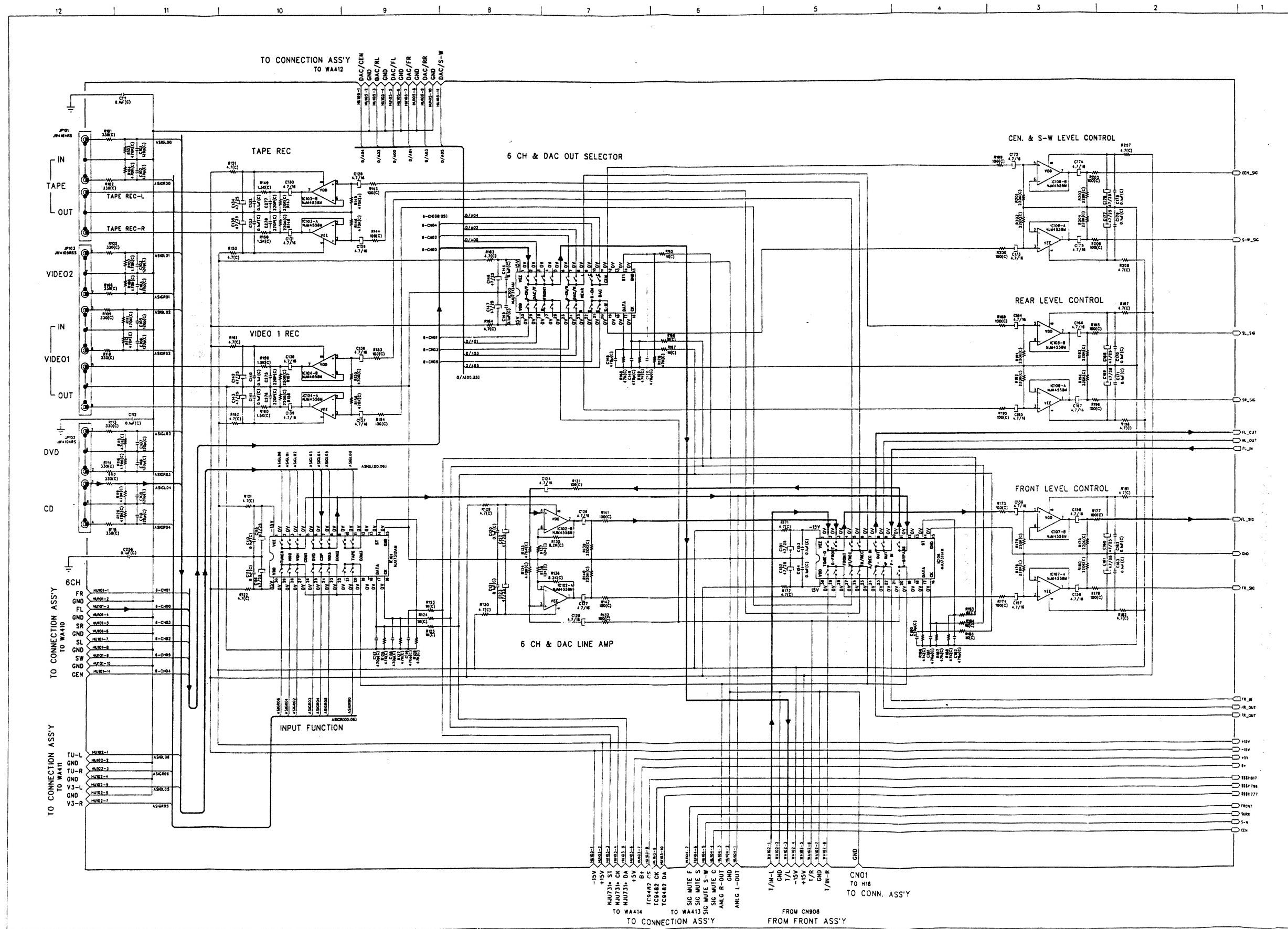
MEMO

BLOCK DIAGRAM

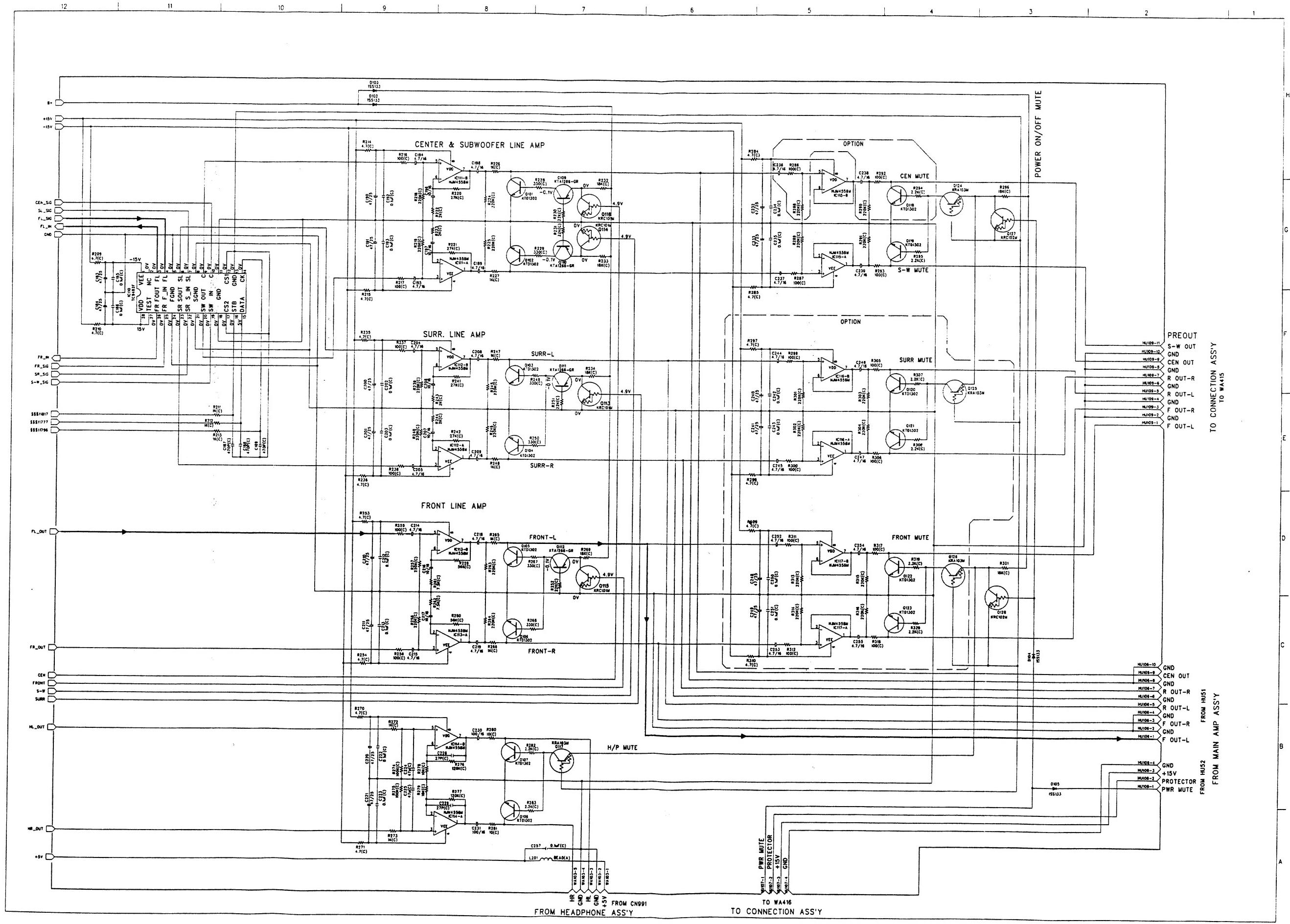


SHEMATIC DIAGRAMS

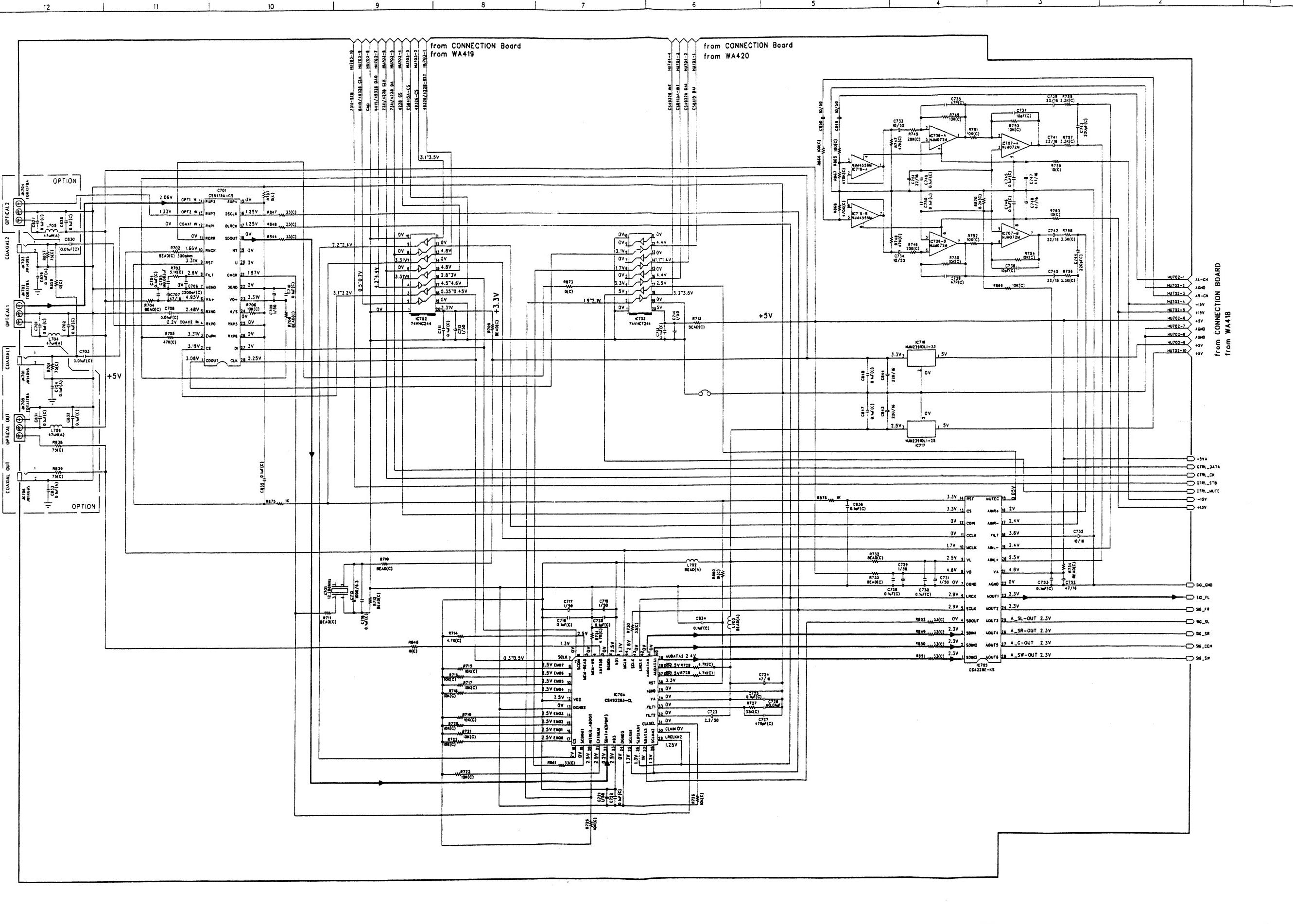
• INPUT SCHEMATIC DIAGRAM(1/2)



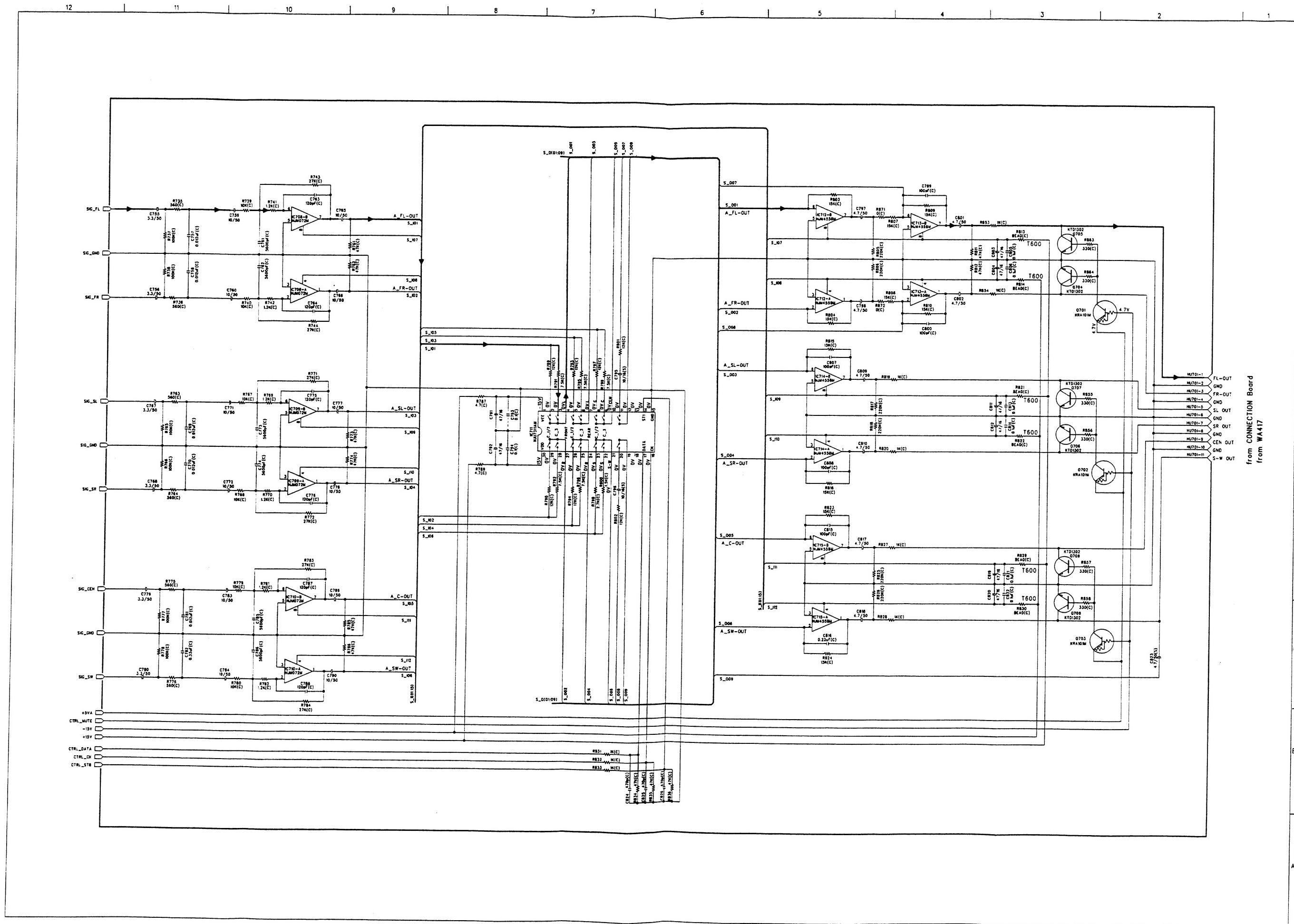
• INPUT SCHEMATIC DIAGRAM(2/2)



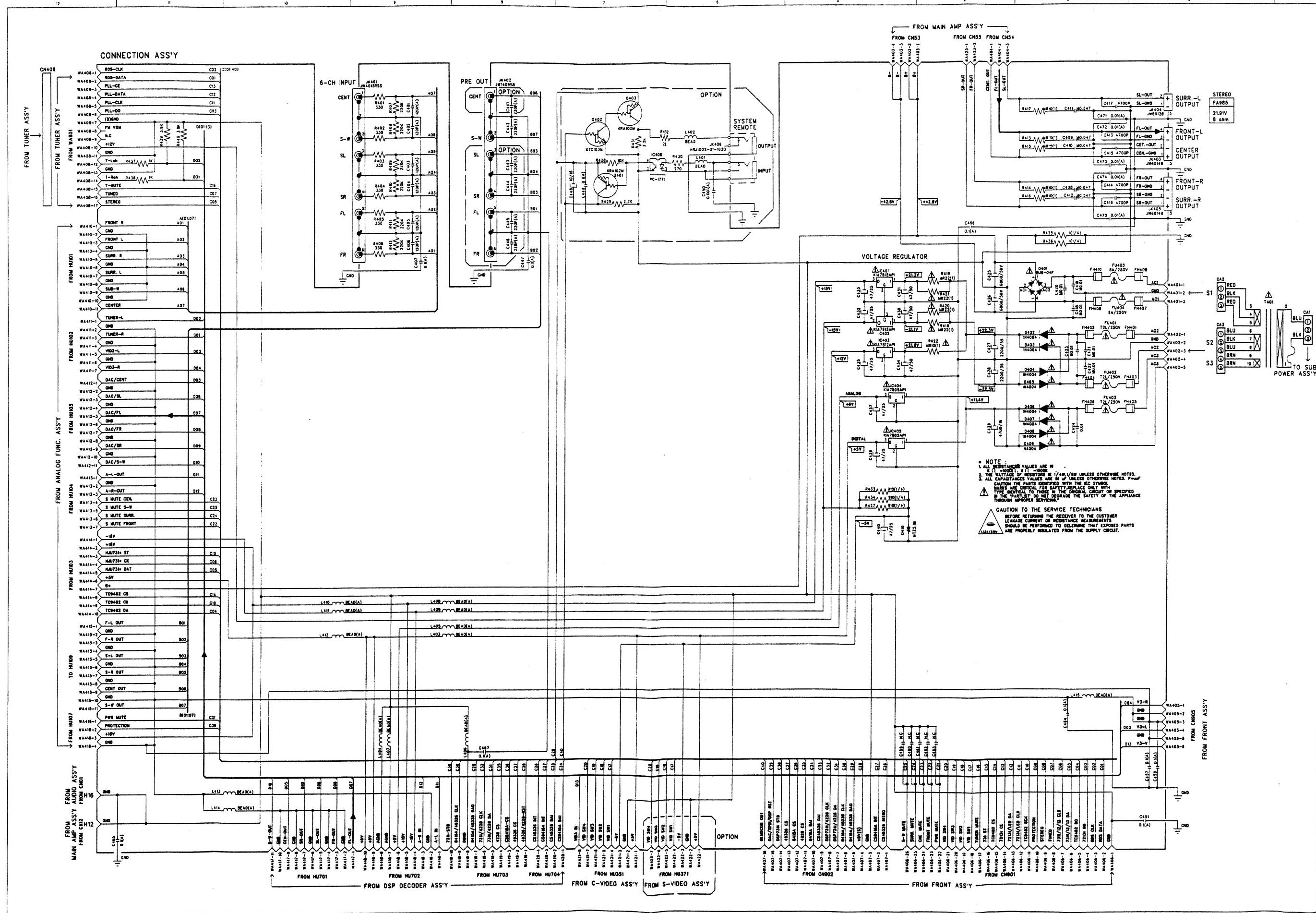
• DSP SCHEMATIC DIAGRAM(1/2)



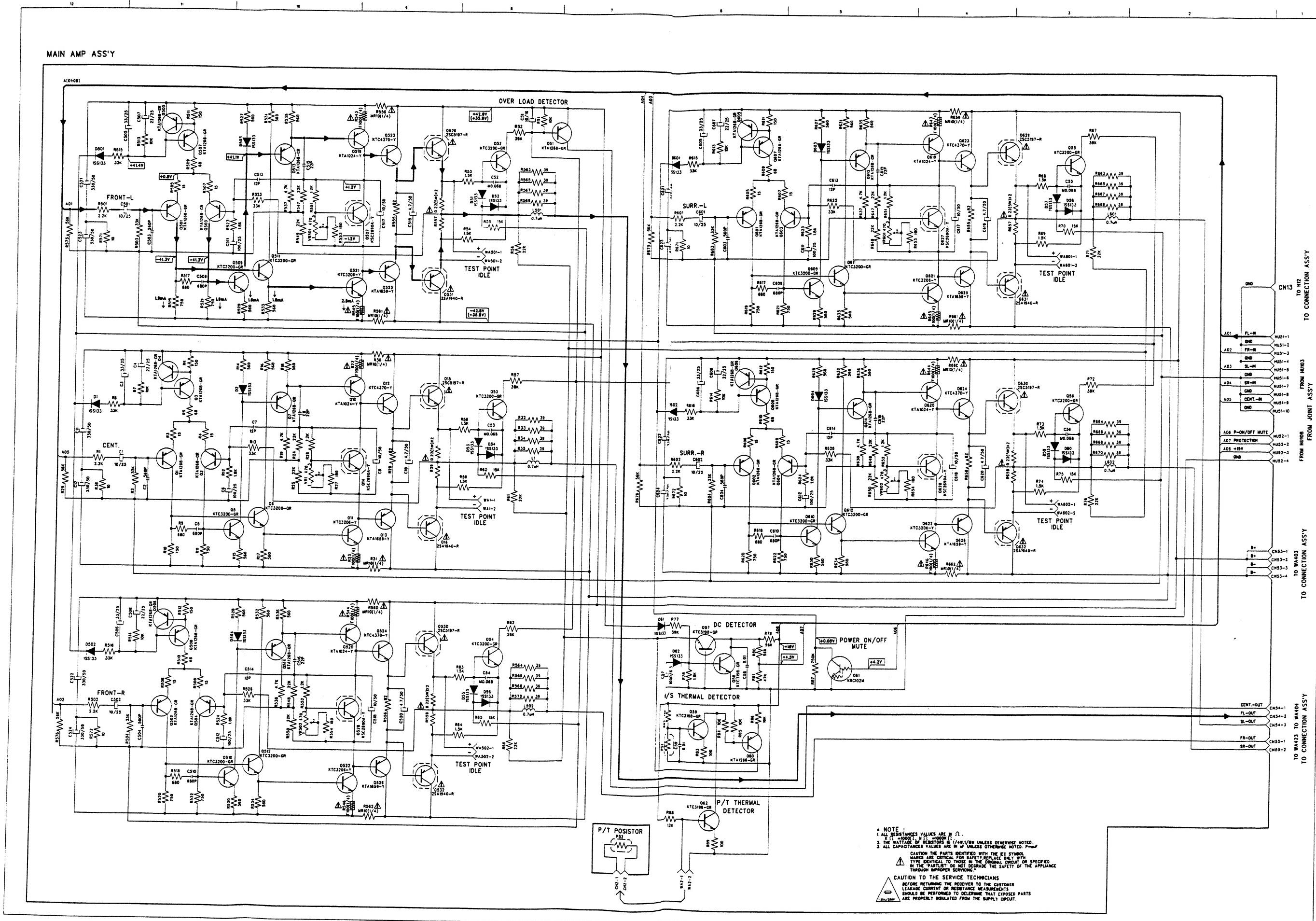
DSP SCHEMATIC DIAGRAM(2/2)



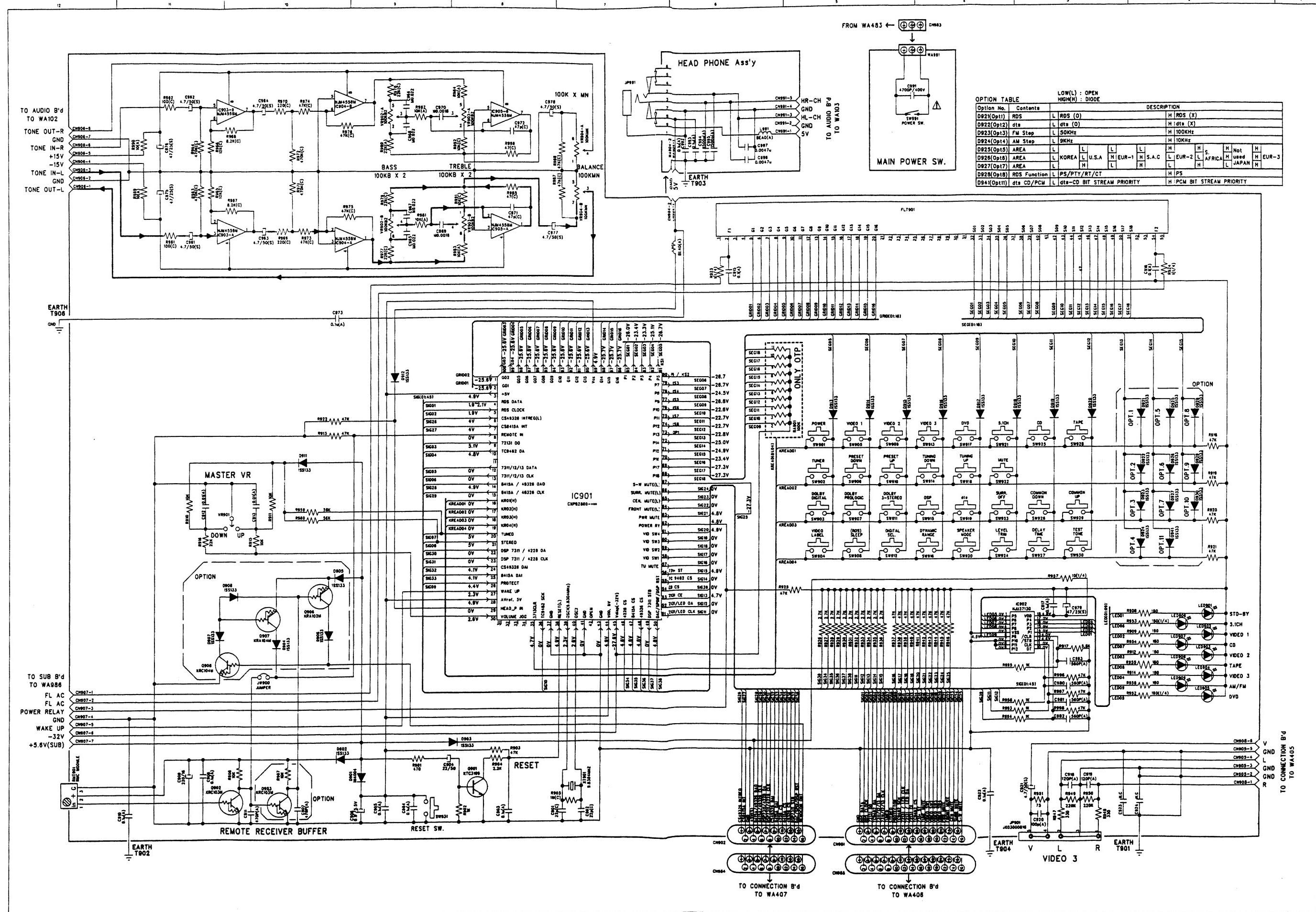
• CONNECTION SCHEMATIC DIAGRAM



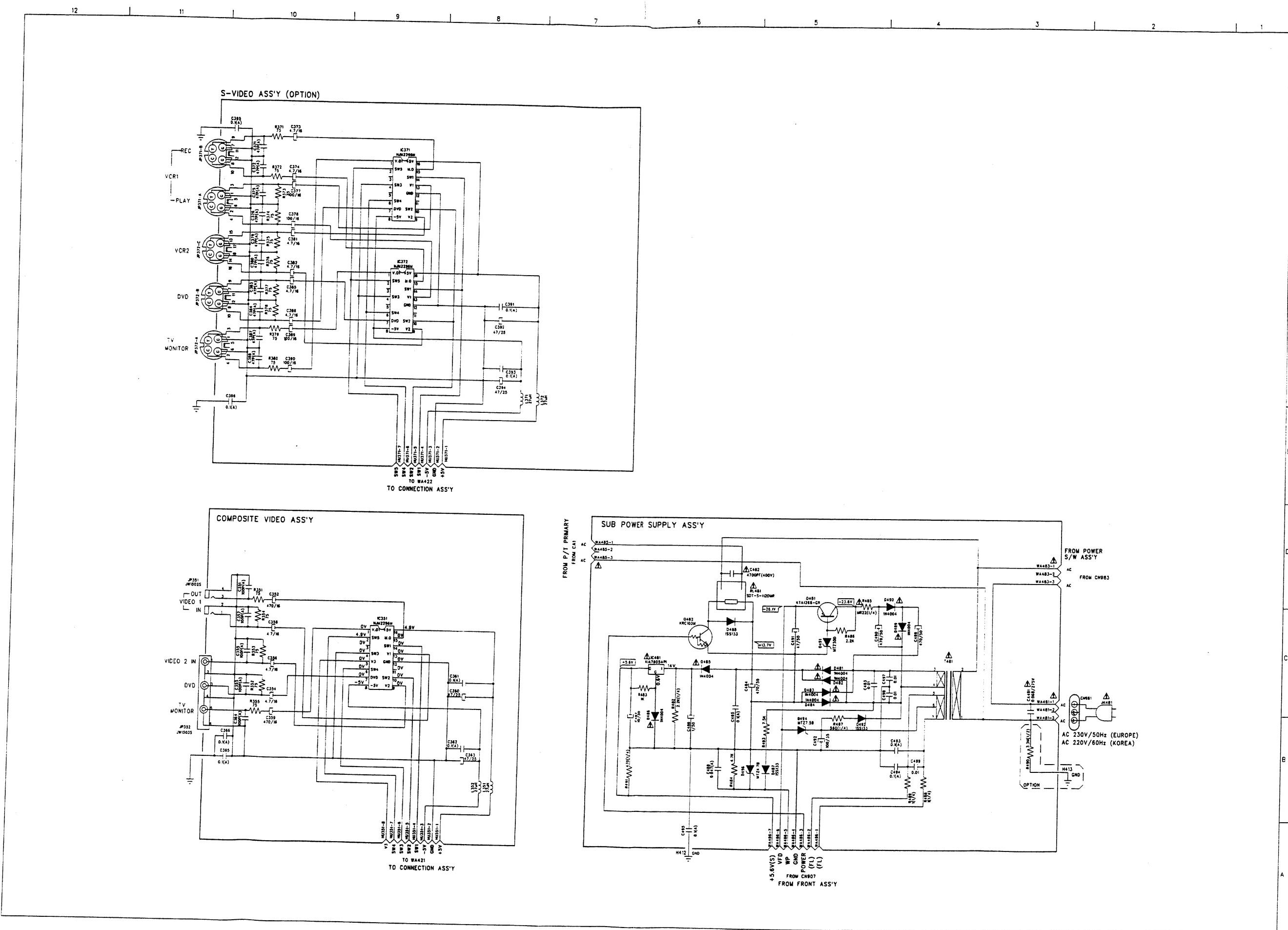
• MAIN AMP SCHEMATIC DIAGRAM



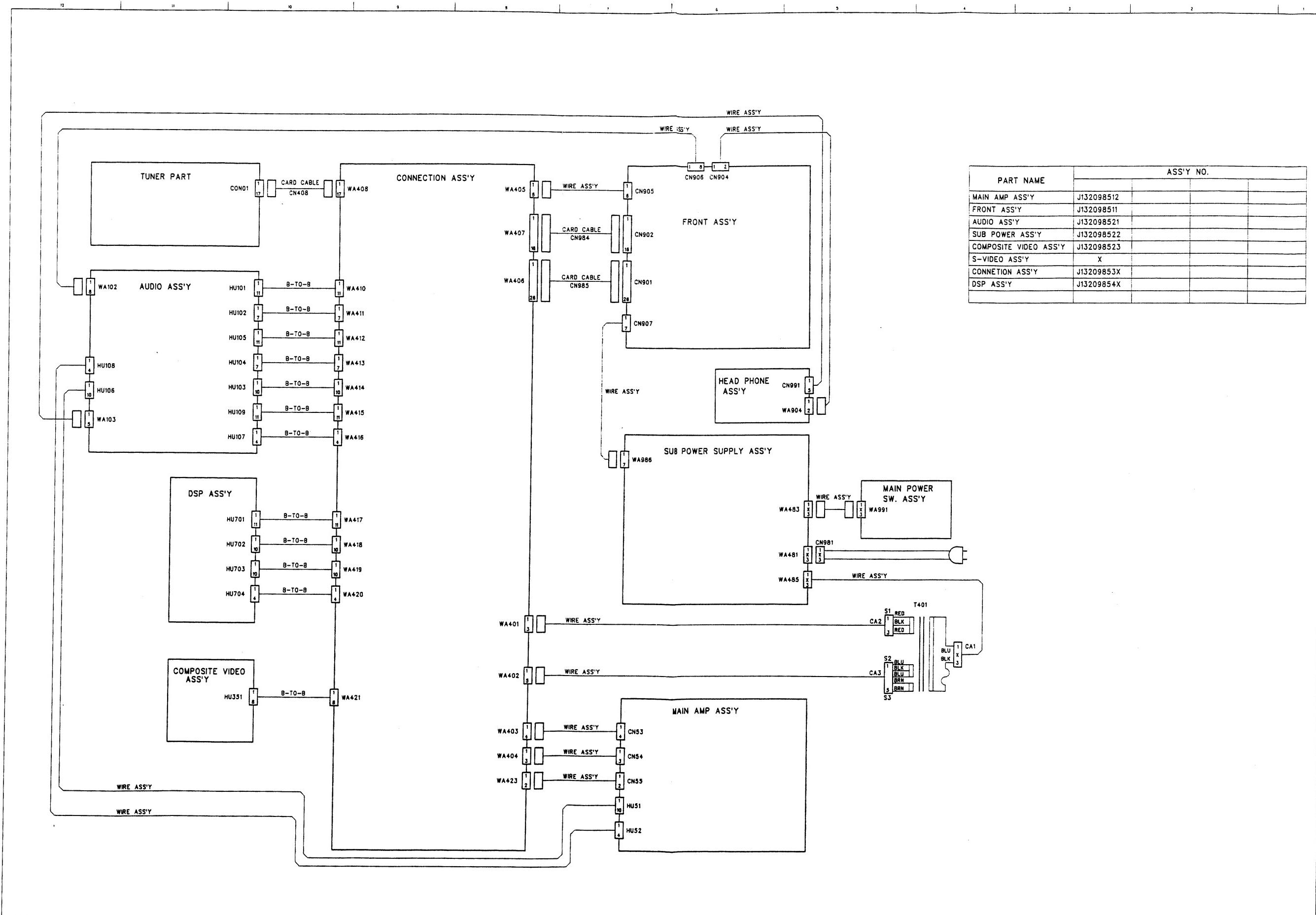
• u-COM & F.L DISPLAY SCHEMATIC DIAGRAM



• VIDEO PART SCHEMATIC DIAGRAM

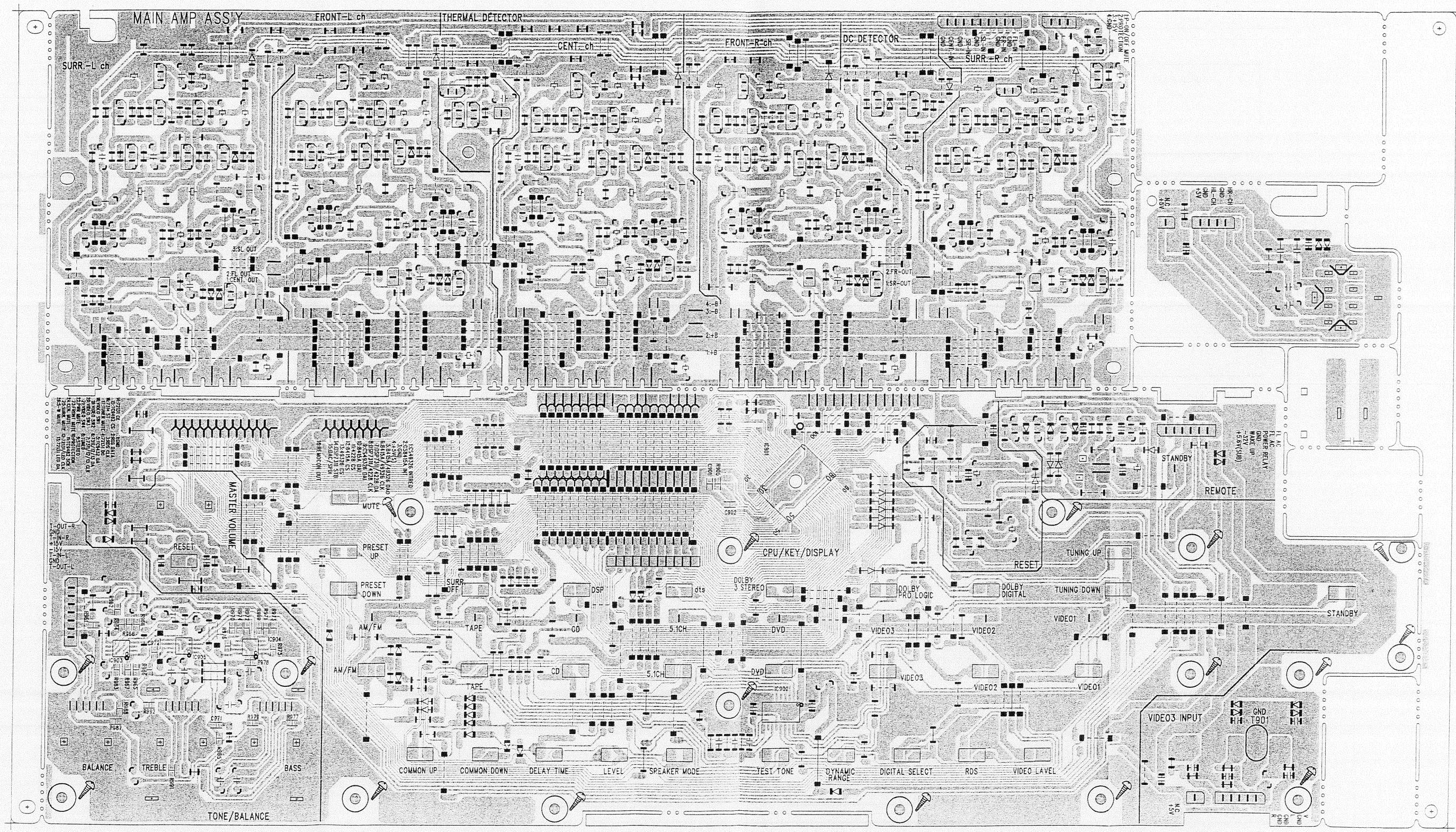


WIRING DIAGRAM

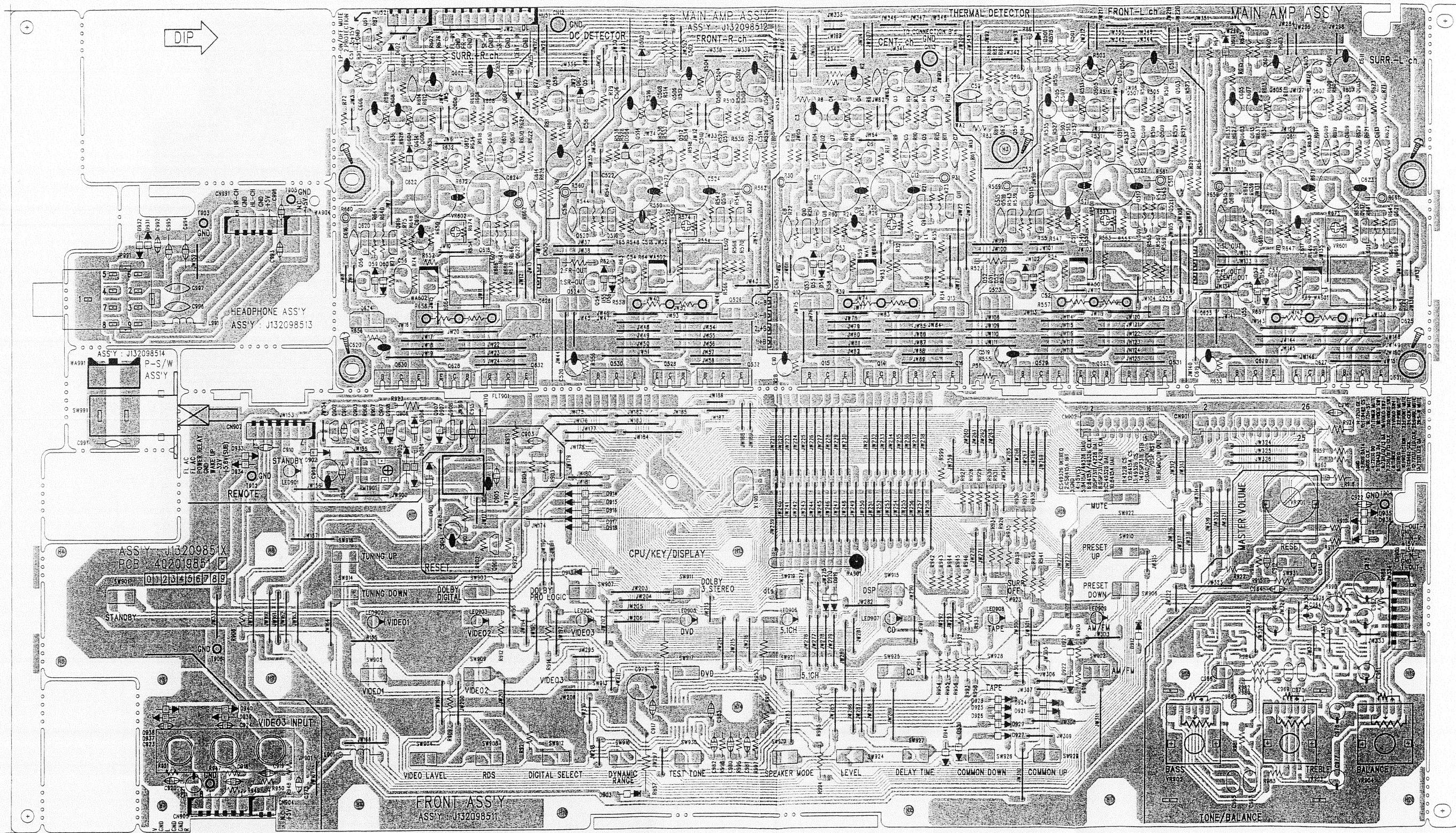


PRINTED CIRCUIT DIAGRAMS

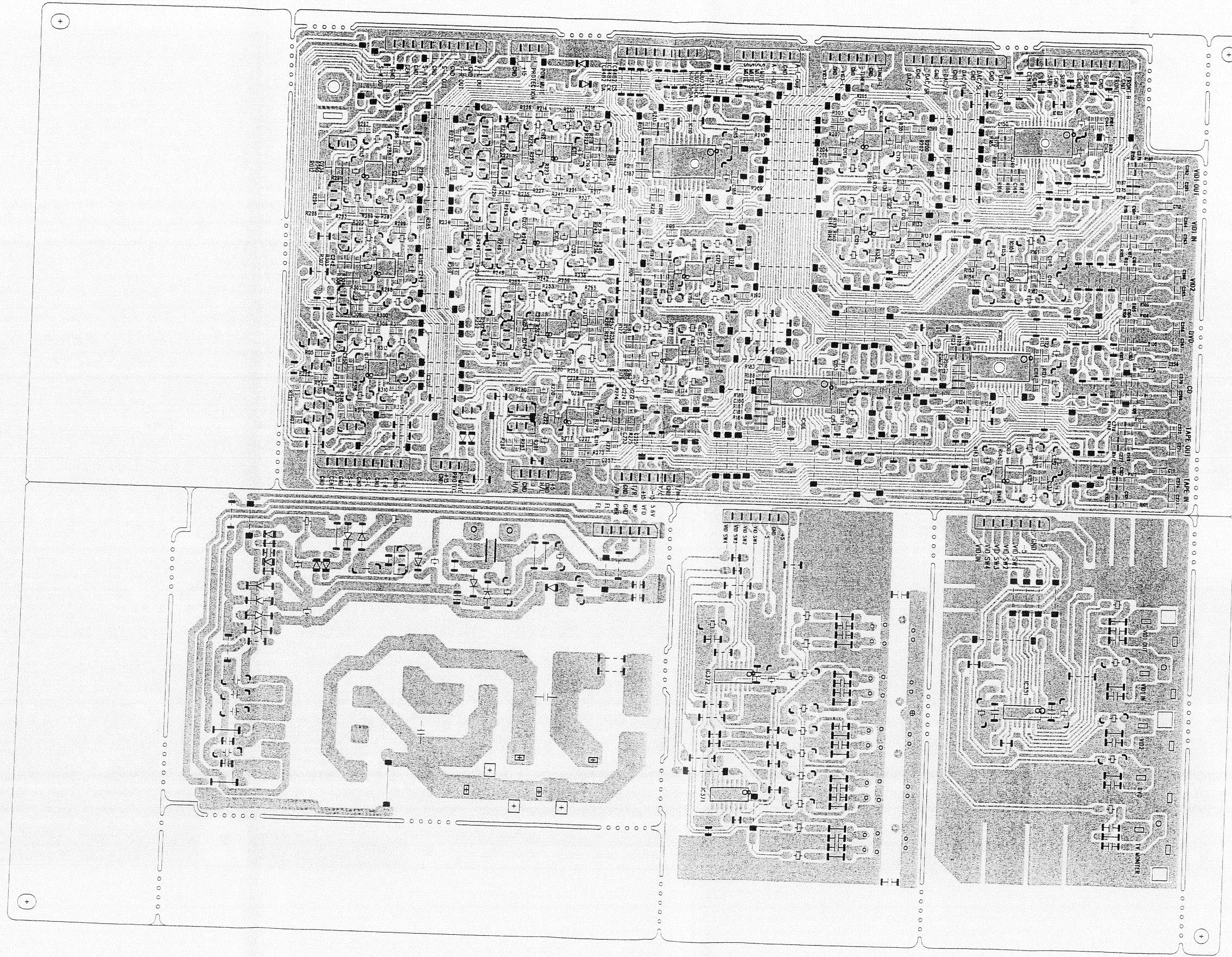
1. MAIN/FRONT/P-SW/HEADPHONE P.C.BOARD (BOTTOM SIDE)



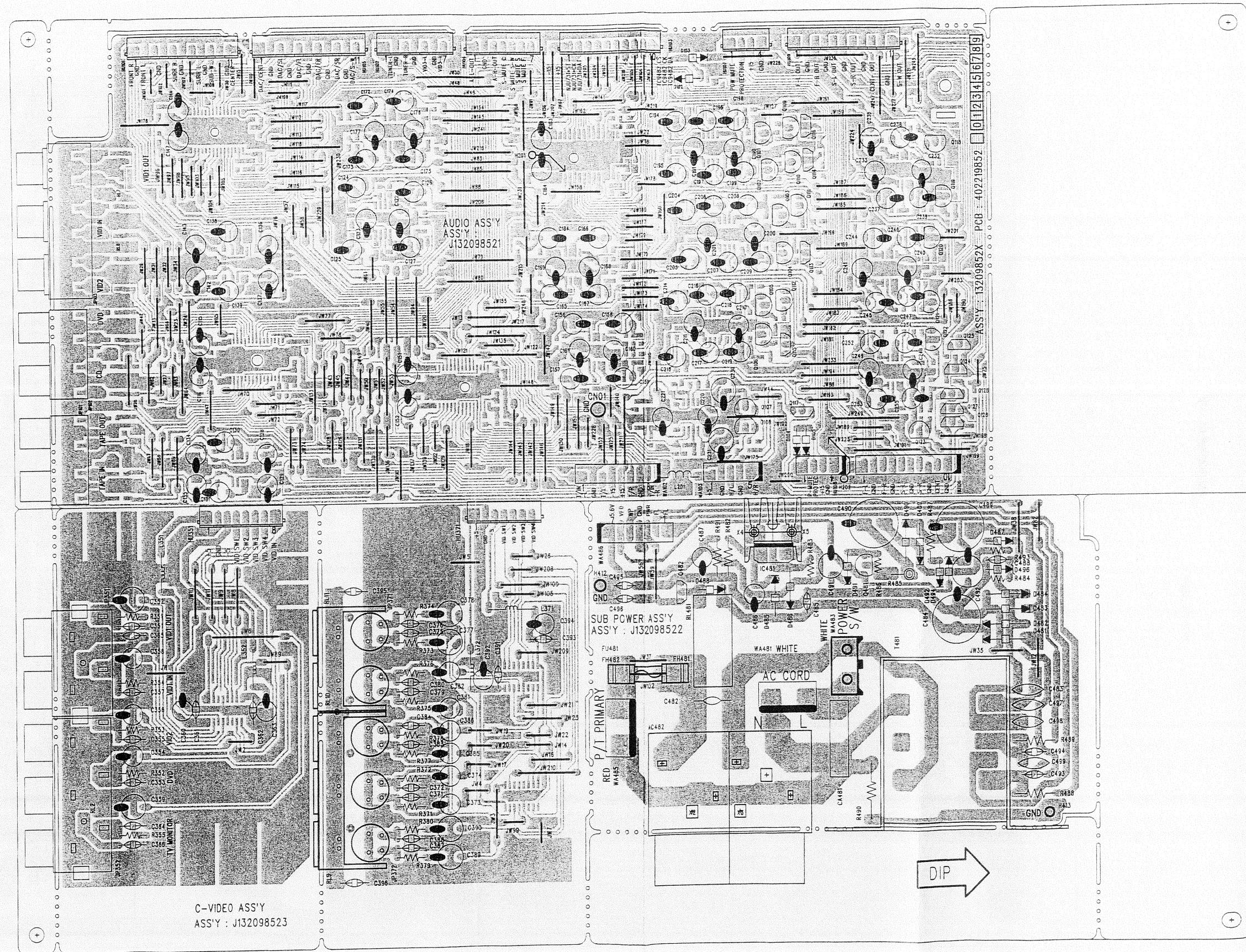
1. MAIN/FRONT/P-SW/HEADPHONE P.C.BOARD (COMPONENT SIDE)



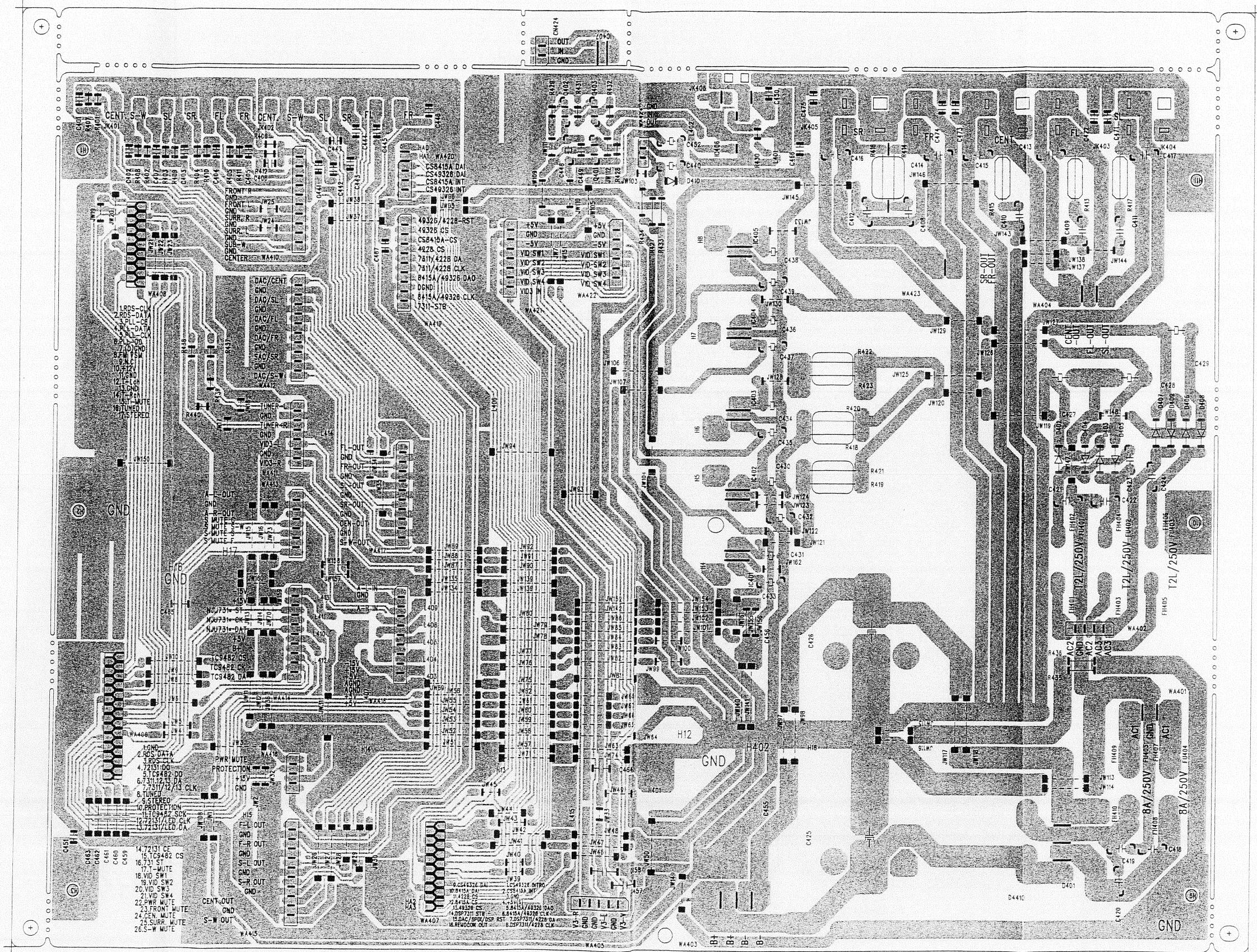
2. AUDIO/POWER/C-VIDEO P.C.BOARD (BOTTOM SIDE)



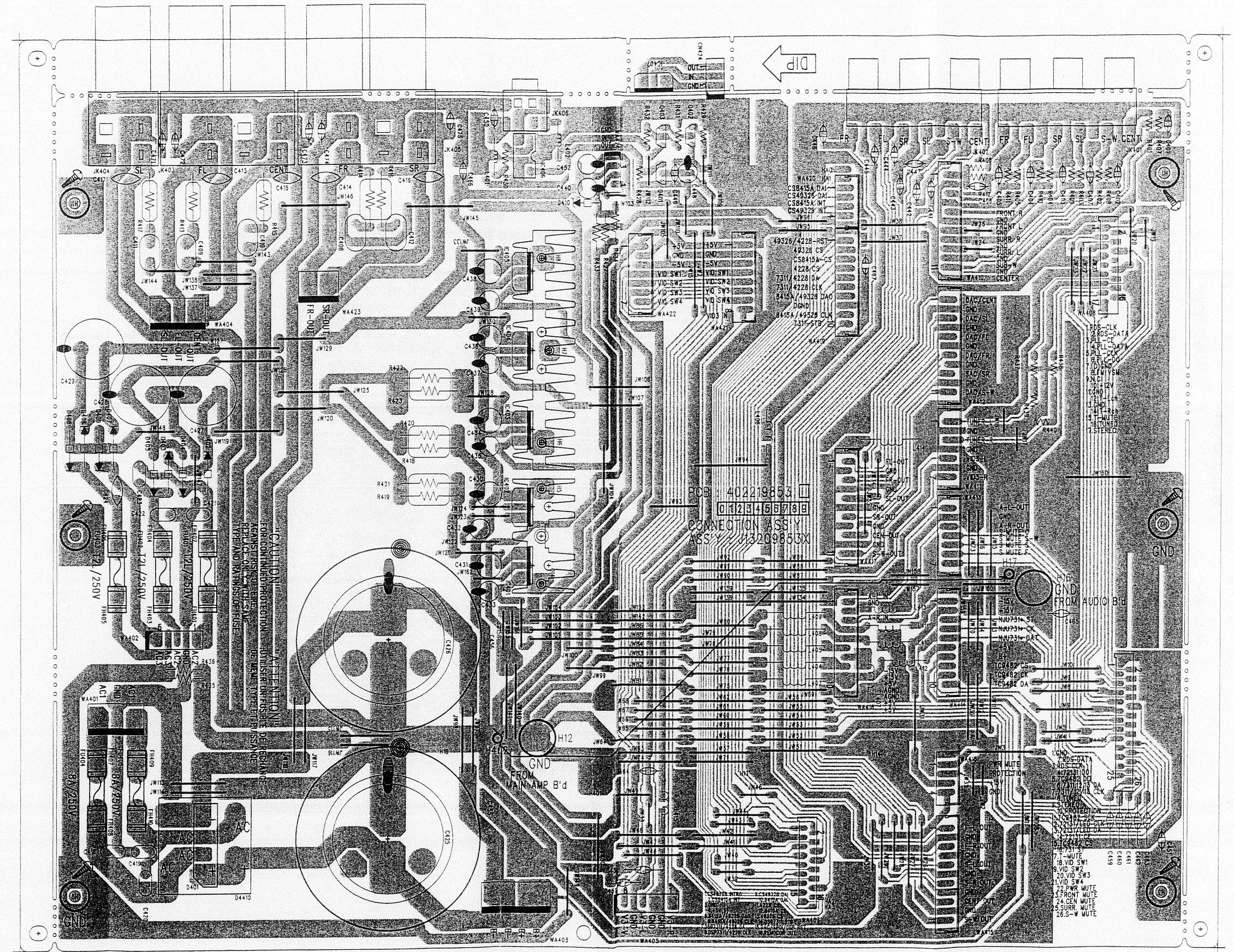
2. AUDIO/POWER/C-VIDEO P.C. BOARD(COMPONENT SIDE)



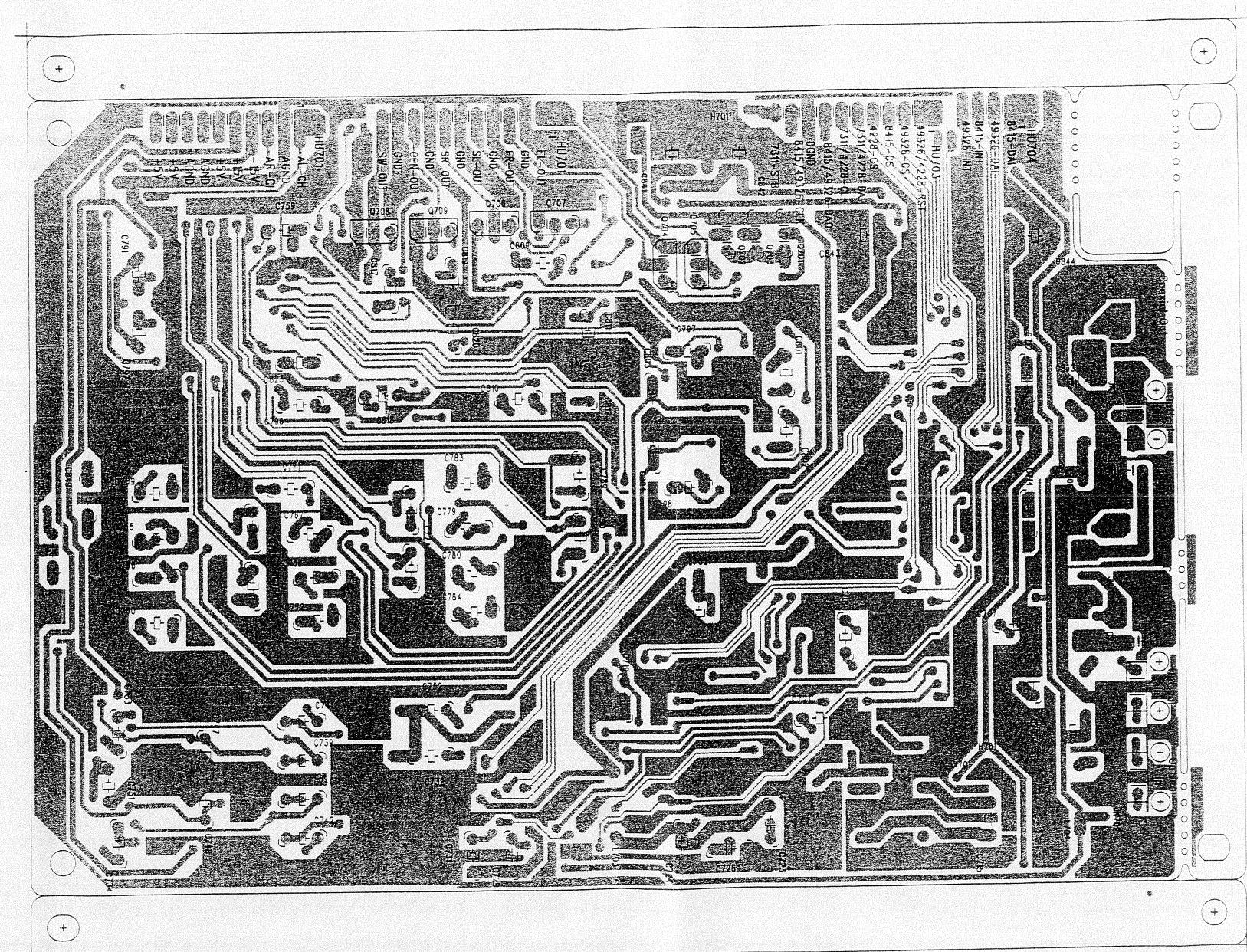
3. CONNECTION P.C.BOARD (BOTTOM SIDE)



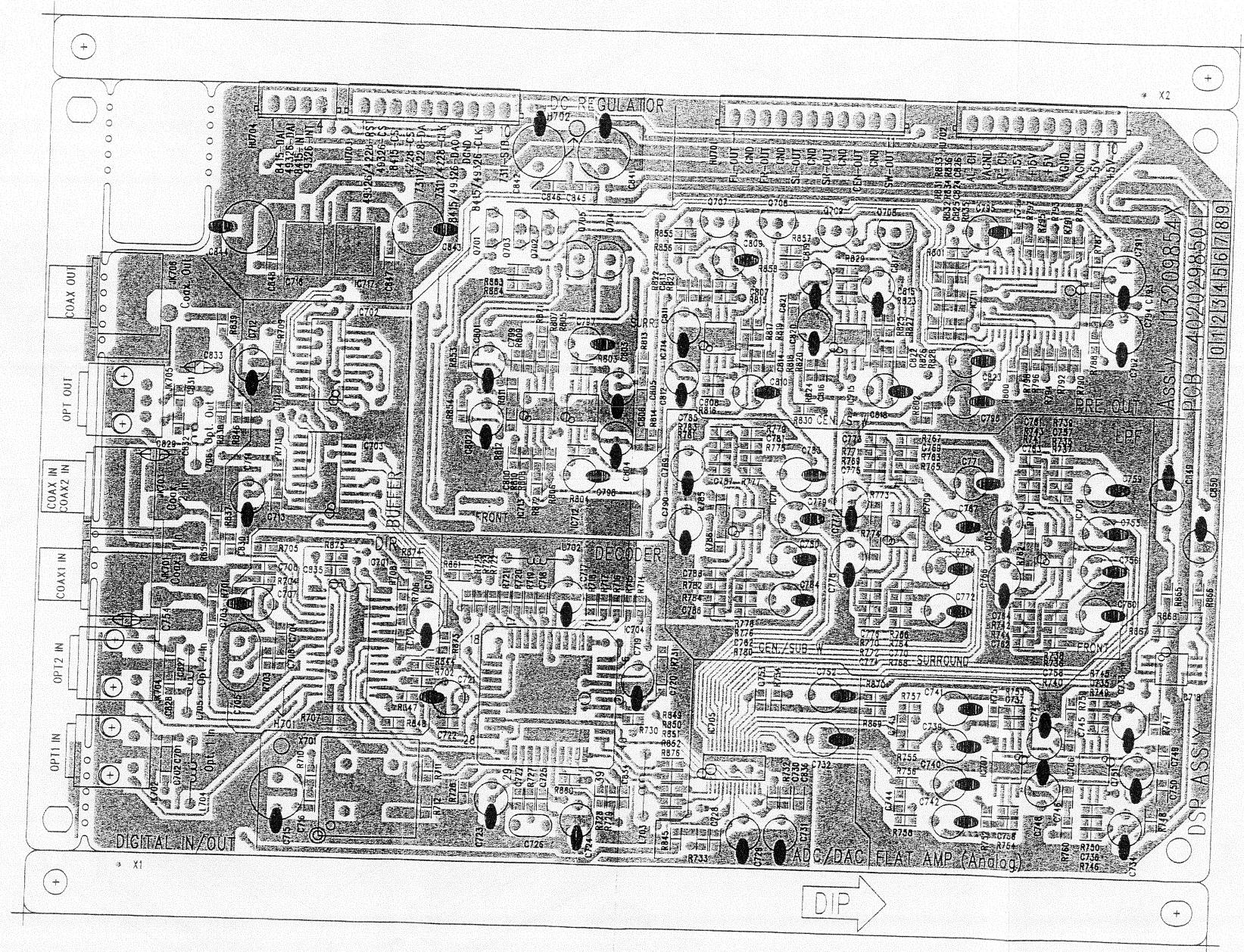
3. CONNECTION P.C.BOARD (COMPONENT SIDE)



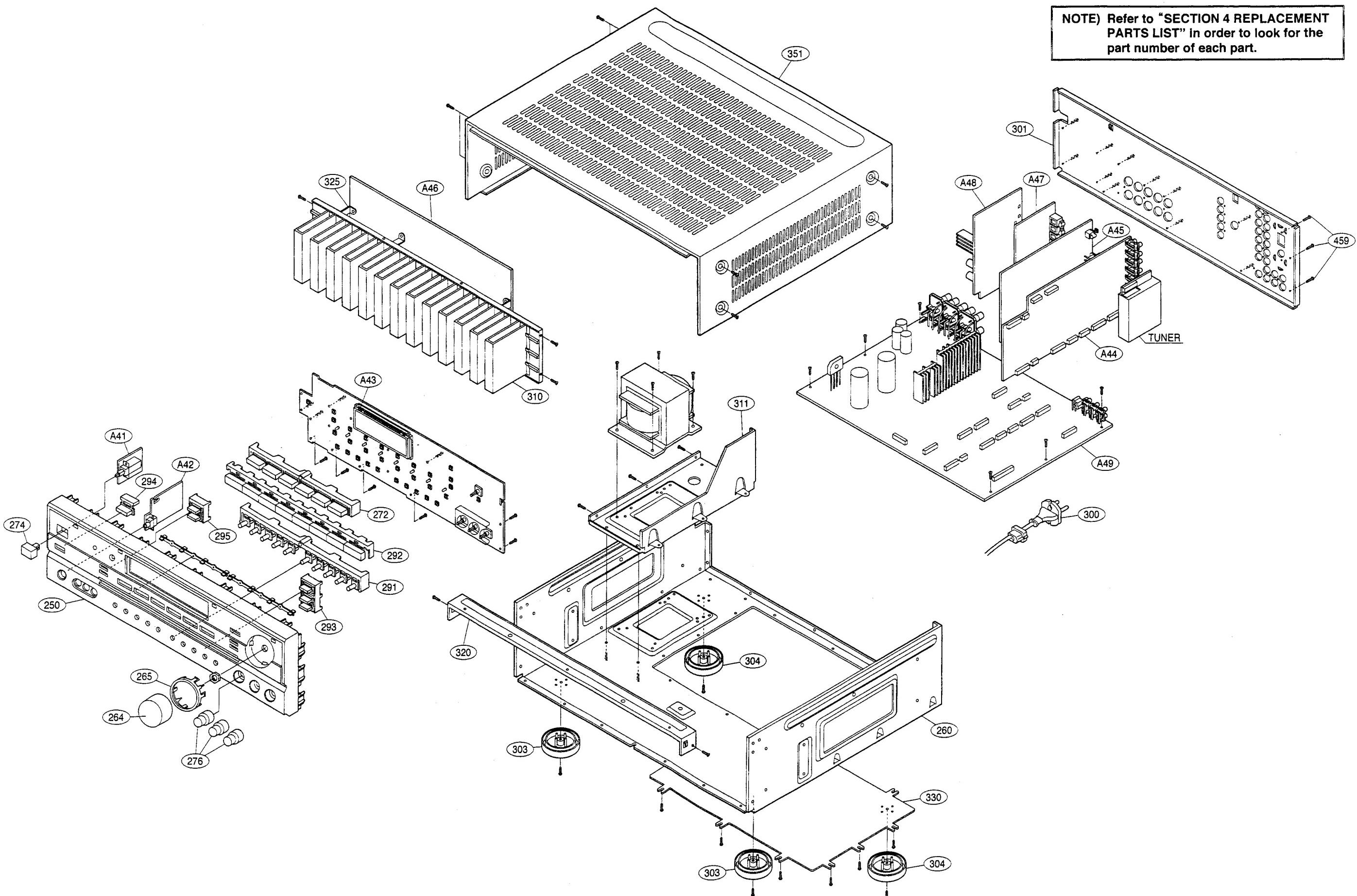
4. DSP P.C. BOARD (BOTTOM)



4. DSP P.C. BOARD (COMPONENT SIDE)



SECTION 3. EXPLODED VIEWS



SECTION 4 . REPLACEMENT PARTS LIST

(Regional Information)

LGEDG (GERMANY), LGEIS (ITALY), LGees (SPAIN)

LGEPL (POLAND), LGEMK (HUNGARY)

Cabinet & Main Frame Section

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION	REMARKS
ASSEMBLY SECTION				
A41	6871RZ4005A	PWB(PCB) ASSEMBLY.OTHERS	FA-985 POWER SWITCH PCB ASSY	
A42	6871RJ4005A	PWB(PCB) ASSEMBLY.JACK(AUDIO)	FA-985 HEAD PHONE PCB ASSY	
A43	6871RF4005A	PWB(PCB) ASSEMBLY.FRONT(AUDIO)	FA-985 FRONT PCB ASSY	
A44	6871RA4007A	PWB(PCB) ASSEMBLY.AUDIO(VCR)	FA-985 AUDIO PCB ASSY	
A45	6871RD4004A	PWB(PCB) ASSEMBLY.DSP(VCR)	FA-985 DSP PCB ASSY	
A46	6871RM4005A	PWB(PCB) ASSEMBLY.MAIN(AUDIO)	FA-985 MAIN PCB ASSY	
A47	6871RZ4007A	PWB(PCB) ASSEMBLY.OTHERS	FA-985 VIDEO PCB ASSY	
A48	6871RP4007A	PWB(PCB) ASSEMBLY.POWER(MULTI)	FA-985 SUB POWER PCB ASSY	
A49	6872RP4006A	H&A INS PWB(PCB) ASSEMBLY	FA-985 CONNECTION PCB ASSY	
PARTS SECTION				
250	3720RCF011A	PANEL,FRONT	FRONT (FA-985)	
260	3140RC0004A	CHASSIS	MAIN SHASSIS(FA-985)	
264	4940RCV017A	KNOB	VOLUME (FA-985)	
265	4350RC0001A	RING	VOLUME RING(FA-985)	
272	4940RCT044A	KNOB	TACT (FUNC-B)FA-985	
274	4940RCP007A	KNOB	PUSH (FUNC-A)	
276	4940RCV018A	KNOB	ROTARY KNOB(FA-985)	
291	4940RCT045A	KNOB	TACT (MODE KNOB)FA-985	
292	4940RCT043A	KNOB	TACT (FUNC-A) FA-985	
293	4940RCT046A	KNOB	TACT (PRESET KNOB)FA-985	
294	4940RCT047A	KNOB	TACT (STANDBY KNOB)FA-985	
295	4940RCV016A	KNOB	TUNING KNOB(FA-985)	
300	6410SCE200A	POWER CORD	CE-503 PLUG CHAUS CE 2000MMMM S	
301	3720RCM018A	PANEL,AUDIO	REAR	
301	3720RCM018B	PANEL,AUDIO	REAR : ONLY POLAND	
303	3610RC0002A	FOOT	FOOT (HOT STAMPING FA-985)	
304	3610RC0003A	FOOT	FOOT (FA-985)	
310	4920S-E007A	HEAT SINK	MAIN(F-680V/390V)	
311	3210RC0001A	FRAME	TRANS FRAME(FA-985)	
320	3210RC0002A	FRAME	FRAME FRONT(FA-985)	
325	4810RC0009A	BRACKET	HS BRAKET(FA-985)	
330	3550RC0016A	COVER	BOT COVER(FA-985)	
351	3140RC0005A	CHASSIS	BONNET (FA-985)	
		SCREW		
459	353-028A	SCREW	SPECIAL	

Accessory Section

801	3829RDT007A	MANUAL ASSEMBLY,OWNERS	FOR ITALY	
801	3829RDT007B	MANUAL ASSEMBLY,OWNERS	FOR POLAND	
801	3829RDT007C	MANUAL ASSEMBLY,OWNERS	FOR HUNGARY	
801	3829RDT007D	MANUAL ASSEMBLY,OWNERS	FOR GERMANY	
801	3829RDT007E	MANUAL ASSEMBLY,OWNERS	FOR SPAIN	
802	3890RCC0021A	BOX,MASTER	GERMANY/ITALY/SPAIN/HUNGARY	
802	3890RCC0021B	BOX,MASTER	POLAND	
803	3920RCE011A	PACKING,CASING	FA-985 0.02 250 EPS 411	
813	841N0015	BATTERY	R03G-0012 NO MERCURY HI-WATT 1	NSP
825	5010SCL001A	ANTENNA,LOOP	ONLY GERMANY AH42-20001P KWANGSUNG LOOP	
826	5010R-L001A	ANTENNA,LOOP	T15011F-1 KWANG SUNG LOOP SVC	

Remote Control Section

900	6710RCU02A	REMOTE CONTROL,ROLLER	KIE65KEY KYOUNGIN FA-985AD,JA5	
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RUN DATE : 18.AUGUST. '01

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C213	OCH1104K946	CAPA CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C214	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C215	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C216	OCE1066F618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 16V 20% FL TP 5
C217	OCE1066F618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 16V 20% FL TP 5
C218	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C219	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C220	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C221	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C222	OCH1104K946	CAPA,CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C223	OCH1104K946	CAPA,CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C224	OCH4470K416	CAPA,CHIP CERAMIC M/L T.C.F/S	47P 50V JNP0 2.0X1.25 R/TP
C225	OCH4470K416	CAPA,CHIP CERAMIC M/L T.C.F/S	47P 50V J COG 2.0X1.2 R/TP
C226	OCH4270K416	CHIP CAPA,CERAMIC M/L T.C.F/S	27P 50V J COG 2.0X1.2 R/TP
C229	OCH4270K416	CHIP CAPA,CERAMIC M/L T.C.F/S	27P 50V J COG 2.0X1.2 R/TP
C230	OCE1076F618	CAPACITOR,ELECTROLYTIC	100M SMS 16V M FM5 TP(5)
C231	OCE1076F618	CAPACITOR,ELECTROLYTIC	100M SMS 16V M FM5 TP(5)
C232	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C233	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C234	OCH1104K946	CAPA,CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C235	OCH1104K946	CAPA,CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C236	OCH1104K946	CAPA,CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C237	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C237	OCH1104K946	CAPA,CHIP CERAMIC M/L H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C239	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C3	OCE3366H618	CAPACITOR,ELECTROLYTIC	33M SMS 25V M FL TP(5)
C351	OCN1010K519	CAPACITOR TUBULA(HIGH DIELE)	100P 50V K B TA52
C352	OCE1076F618	CAPACITOR,ELECTROLYTIC	100M SMS 16V M FM5 TP(5)
C353	OCN1010K519	CAPACITOR TUBULA(HIGH DIELE)	100P 50V K B TA52
C354	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C355	OCN1010K519	CAPACITOR TUBULA(HIGH DIELE)	100P 50V K B TA52
C356	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C357	OCN1010K519	CAPACITOR TUBULA(HIGH DIELE)	100P 50V K B TA52
C358	OCE4756F618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 16V 20% FL TP 5
C359	OCE1076F618	CAPACITOR,ELECTROLYTIC	100M SMS 16V M FM5 TP(5)
C360	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C361	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C362	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C363	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C364	OCN1010K519	CAPACITOR TUBULA(HIGH DIELE)	100P 50V K B TA52
C365	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C366	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C4	OCE2266H618	CAPACITOR,ELECTROLYTIC	22M SMS 25V M FM5 TP(5)
C401	OCN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C402	OCN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C403	OCN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C404	OCN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C405	OCN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C406	OCN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C407	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C408	OCC4731N409	CAPACITOR POLYESTER(MYLAR)	0.047U 100V J POLY TP
C409	OCC4731N409	CAPACITOR POLYESTER(MYLAR)	0.047U 100V J POLY TP
C410	OCC4731N409	CAPACITOR POLYESTER(MYLAR)	0.047U 100V J POLY TP
C411	OCC4731N409	CAPACITOR POLYESTER(MYLAR)	0.047U 100V J POLY TP
C412	OCC4731N409	CAPACITOR POLYESTER(MYLAR)	0.047U 100V J POLY TP
C413	OCE4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%, -20% F(Y5V) T
C414	OCE4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%, -20% F(Y5V) T
C415	OCE4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%, -20% F(Y5V) T
C416	OCE4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%, -20% F(Y5V) T

RUN DATE : 18.AUGUST. '01

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C417	OCK4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%, -20% F(Y5V) T
C418	OCC1031N409	CAPACITOR POLYESTER(MYLAR)	0.01UF 100V J PE TP
C419	OCC1031N409	CAPACITOR POLYESTER(MYLAR)	0.01UF 100V J PE TP
C420	OCC1031N409	CAPACITOR POLYESTER(MYLAR)	0.01UF 100V J PE TP
C421	OCC1031N409	CAPACITOR POLYESTER(MYLAR)	0.01UF 100V J PE TP
C422	OCC1031N409	CAPACITOR POLYESTER(MYLAR)	0.01UF 100V J PE TP
C423	OCC1031N409	CAPACITOR POLYESTER(MYLAR)	0.01UF 100V J PE TP
C424	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C425	OCE688HK610	CAPACITOR,FIXED ELECTROLYTIC	6800UF DL 50V 20% BULK FL
C426	OCE688HK610	CAPACITOR,FIXED ELECTROLYTIC	6800UF DL 50V 20% BULK FL
C427	OCE2266J650	CAPACITOR,ELECTROLYTIC	2200M SMS M FM7.5
C428	OCE2266J650	CAPACITOR,ELECTROLYTIC	2200M SMS M FM7.5 BULK
C429	OCE4786H650	CAPACITOR,ELECTROLYTIC	4700UF SMS 25V M FM7.5 BULK
C430	OCE4766K618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FM5 TP(5)
C431	OCE4766K618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FM5 TP(5)
C432	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C433	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C434	OCE4766K618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FM5 TP(5)
C435	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C437	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C438	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C440	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C442	OCN2210K519	CAPACITOR TUBULA(HIGH DIELE)	220P 50V K B TA52
C447	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C457	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C458	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C464	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C471	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C472	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C473	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C474	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C475	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C479	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C482	624-086E	CAPACITOR,FIXED CERAMIC(High d)	AC-CON 472400V(SC)
C483	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C484	OCE4776K630	CAPACITOR,FIXED ELECTROLYTIC	470UF SMS SG 50V 20% FM5 BULK
C485	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C486	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C487	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C488	OCE4730K949	CAPACITOR,FIXED TUBULAR(High d)	0.047UF D 50V 80%, -20% F(Y5V)
C489	OCE4776K630	CAPACITOR,FIXED ELECTROLYTIC	470UF SMS SG 50V 20% FM5 BULK
C490	OCE4776K630	CAPACITOR,FIXED ELECTROLYTIC	470UF SMS SG 50V 20% FM5 BULK
C491	OCE4766K610	CAPACITOR,FIXED ELECTROLYTIC	47UF SMS SG 50V 20% FL BULK
C492	OCE1076J618	CAPACITOR,ELECTROLYTIC	100UF SMS 35V M FM5 TP(5)
C493	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C494	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%, -20% F(Y5V) TA
C498	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C499	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C5	OCC6810K405	CAPACITOR,FIXED CERAMIC(Temp.c)	680PF D 50V 5% SL TR
C501	OCE1066H618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 25V 20% FL TP 5
C502	OCE1066H618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 25V 20% FL TP 5
C503	OCC5610K405	CAPACITOR,FIXED CERAMIC(Temp.c)	560PF D 50V 5% SL TR
C504	OCC5610K405	CAPACITOR,FIXED CERAMIC(Temp.c)	560PF D 50V 5% SL TR
C505	OCE3366H618	CAPACITOR,ELECTROLYTIC	33M SMS 25V M FL TP(5)
C506	OCE3366H618	CAPACITOR,ELECTROLYTIC	33M SMS 25V M FL TP(5)
C507	OCE2266H618	CAPACITOR,ELECTROLYTIC	22M SMS 25V M FM5 TP(5)
C508	OCE2266H618	CAPACITOR,ELECTROLYTIC	22M SMS 25V M FM5 TP(5)
C509	OCC6810K405	CAPACITOR,FIXED CERAMIC(Temp.c)	680PF D 50V 5% SL TR
C51	OCE1066F618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 16V 20% FL TP 5

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C510	OCC6810K405	CAPACITOR,FIXED CERAMIC(Temp.c)	680PF D 50% 5% SL TR
C511	OCE1076H618	CAPACITOR,ELECTROLYTIC	100M SMS 25V M FM5 TP(5)
C512	OCE1076H618	CAPACITOR,ELECTROLYTIC	100M SMS 25V M FM5 TP(5)
C513	OCX1200K419	CAPACITOR,TUBULAR(T.C)	12PF 50V J NP0 TA52
C514	OCX1200K419	CAPACITOR,TUBULAR(T.C)	12PF 50V J NP0 TA52
C515	OCX2200K409	CAPACITOR TUBULAR(T.C)	22P 50V J SL TA52
C516	OCX2200K409	CAPACITOR TUBULAR(T.C)	22P 50V J SL TA52
C517	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C518	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C519	OCE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS,SG 50V 20% FL TP 5
C52	OCC6831N409	CAPACITOR POLYESTER(MYLAR)	0.068U 100V J POLY TP
C520	OCE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS,SG 50V 20% FL TP 5
C521	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C522	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C523	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C524	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C53	OCC6831N409	CAPACITOR POLYESTER(MYLAR)	0.068U 100V J POLY TP
C54	OCC6831N409	CAPACITOR POLYESTER(MYLAR)	0.068U 100V J POLY TP
C55	OCC6831N409	CAPACITOR POLYESTER(MYLAR)	0.068U 100V J POLY TP
C56	OCC6831N409	CAPACITOR POLYESTER(MYLAR)	0.068U 100V J POLY TP
C57	OCE1086C630	CAPACITOR,ELECTROLYTIC	1000UF SMS 6.3V M FM5 BULK
C58	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C59	OCK1030K945	CAPACITOR,CERAMIC(HIGH DIELE)	0.01UF 50V Z F TR
C6	OCE1076H618	CAPACITOR,ELECTROLYTIC	100M SMS 25V M FM5 TP(5)
C601	OCE1066H618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS,SG 25V 20% FL TP 5
C602	OCE1066H618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS,SG 25V 20% FL TP 5
C603	OCC5610K405	CAPACITOR,FIXED CERAMIC(Temp.c)	560PF D 50V 5% SL TR
C604	OCC5610K405	CAPACITOR,FIXED CERAMIC(Temp.c)	560PF D 50V 5% SL TR
C605	OCE3366H618	CAPACITOR,ELECTROLYTIC	33M SMS 25V M FL TP(5)
C606	OCE3366H618	CAPACITOR,ELECTROLYTIC	33M SMS 25V M FL TP(5)
C607	OCE2266H618	CAPACITOR,ELECTROLYTIC	22M SMS 25V M FM5 TP(5)
C608	OCE2266H618	CAPACITOR,ELECTROLYTIC	22M SMS 25V M FM5 TP(5)
C609	OCC6810K405	CAPACITOR,FIXED CERAMIC(Temp.c)	680PF D 50V 5% SL TR
C610	OCC6810K405	CAPACITOR,FIXED CERAMIC(Temp.c)	680PF D 50V 5% SL TR
C611	OCE1076H618	CAPACITOR,ELECTROLYTIC	100M SMS 25V M FM5 TP(5)
C612	OCE1076H618	CAPACITOR,ELECTROLYTIC	100M SMS 25V M FM5 TP(5)
C613	OCX1200K419	CAPACITOR,TUBULAR(T.C)	12PF 50V J NP0 TA52
C614	OCX1200K419	CAPACITOR,TUBULAR(T.C)	12PF 50V J NP0 TA52
C615	OCX2200K409	CAPACITOR TUBULAR(T.C)	22P 50V J SL TA52
C616	OCX2200K409	CAPACITOR TUBULAR(T.C)	22P 50V J SL TA52
C617	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C618	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C619	OCE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS,SG 50V 20% FL TP 5
C620	OCE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS,SG 50V 20% FL TP 5
C621	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C622	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C623	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C624	OCE3376K630	CAPACITOR,ELECTROLYTIC	330M SMS 50V M FM5
C7	OCX1200K419	CAPACITOR,TUBULAR(T.C)	12PF 50V J NP0 TA52
C701	OCH1104K946	CAPA,CHIP CERAMIC ML H,D F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C702	OCH1104K946	CAPA,CHIP CERAMIC ML H,D F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C703	OCH1103K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.01UF 50V 10% X7R(X) 2012 R/T
C704	OCH1104K946	CAPA,CHIP CERAMIC ML H,D F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C705	OQC8231N409	CAPACITOR,FIXED FILM	0.082UF D 100V 5% PE TP5
C706	OCH1222K566	CAPACITOR,FIXED CERAMIC(Temp.c)	2200PF 50V 10% X7R(X) 2012 R/T
C707	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C708	OCH1103K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.01UF 50V 10% X7R(X) 2012 R/T
C709	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C710	OCH1104K946	CAPA,CHIP CERAMIC ML H,D F/S	0.1UF 50V Z Y5V(F) 2012 R/TP

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C711	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C712	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C713	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C714	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C715	OCE1066C630	CAPACITOR,ELECTROLYTIC	1000UF SMS 6.3V M FM5 BULK
C716	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C717	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C718	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C719	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C720	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C721	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C722	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C723	OCE2256K618	CAPACITOR,FIXED ELECTROLYTIC	22UF SMS SG 50V 20% FL TP 5
C724	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C725	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C726	OCC1031N409	CAPACITOR, POLYESTER (MYLAR)	0.01UF 100V J PE TP
C727	OCH4471K416	CAPACITOR,CERAMIC ML.T.C.F/S	470P 50V J 20X1.25 R/TP
C728	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C729	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C730	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C731	OCE1056K618	CAPACITOR,ELECTROLYTIC	1.0M SMS 50V M FL TP(5)
C732	OCE1066F618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 16V 20% FL TP 5
C733	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C734	OCE1056K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C735	OCH4470K416	CAPACITOR,CERAMIC ML.T.C.F/S	47P 50V J NPO 2.0X1.25 R/TP
C736	OCH4470K416	CAPACITOR,CERAMIC ML.T.C.F/S	47P 50V J NPO 2.0X1.25 R/TP
C737	OCH4100K416	CAPACITOR,CERAMIC ML.T.C.F/S	10PF 50V J NPO 2012 R/TP
C738	OCH4100K416	CAPACITOR,CERAMIC ML.T.C.F/S	10PF 50V J NPO 2012 R/TP
C739	OCE2266F618	CAPACITOR,ELECTROLYTIC	22M SMS 16V M FM5 TP(5)
C740	OCE2266F618	CAPACITOR,ELECTROLYTIC	22M SMS 16V M FM5 TP(5)
C741	OCE2266F618	CAPACITOR,ELECTROLYTIC	22M SMS 16V M FM5 TP(5)
C742	OCE2266F618	CAPACITOR,ELECTROLYTIC	22M SMS 16V M FM5 TP(5)
C743	OCH4221K416	CAPACITOR,CERAMIC ML.T.C.F/S	220P 50V J 2.0X1.25 R/TP
C744	OCH4221K416	CAPACITOR,CERAMIC ML.T.C.F/S	220P 50V J 2.0X1.25 R/TP
C745	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C746	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C747	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C748	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C749	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C750	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C751	OCE2266F618	CAPACITOR,ELECTROLYTIC	22M SMS 16V M FM5 TP(5)
C752	OCE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C753	OCH1104K946	CAPACITOR,CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C755	OCE3356K618	CAPACITOR,FIXED ELECTROLYTIC	3.3UF SMS SG 50V 20% FL TP 5
C756	OCE3356K618	CAPACITOR,FIXED ELECTROLYTIC	3.3UF SMS SG 50V 20% FL TP 5
C757	OCH1123K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.012UF 50V 10% X7R(X) 2012 R/
C758	OCH1123K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.012UF 50V 10% X7R(X) 2012 R/
C759	OCE1056K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C760	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C761	OCH1562K516	CHIP CAPA CERAMIC ML.H.D.F/S	5600P 50V K B 2.0X1.2 R/TP
C762	OCH1562K516	CHIP CAPA CERAMIC ML.H.D.F/S	5600P 50V K B 2.0X1.2 R/TP
C763	OCH4121K416	CHIP CAPA CERAMIC ML.T.C.F/S	120P 50V J NPO 2.0X1.2 R/TP
C764	OCH4121K416	CHIP CAPA CERAMIC ML.T.C.F/S	120P 50V J NPO 2.0X1.2 R/TP
C765	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C766	OCE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C767	OCE3356K618	CAPACITOR,FIXED ELECTROLYTIC	3.3UF SMS SG 50V 20% FL TP 5
C768	OCE3356K618	CAPACITOR,FIXED ELECTROLYTIC	3.3UF SMS SG 50V 20% FL TP 5
C769	OCH1123K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.012UF 50V 10% X7R(X) 2012 R/
C770	OCH1123K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.012UF 50V 10% X7R(X) 2012 R/

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C771	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C772	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C773	0CH1562K516	CHIP CAPA CERAMIC ML.H.D.F/S	5600P 50V K B 2.0X1.2 R/TP
C774	0CH1562K516	CHIP CAPA CERAMIC ML.H.D.F/S	5600P 50V K B 2.0X1.2 R/TP
C775	0CH4121K416	CHIP CAPA CERAMIC ML.T.C.F/S	120P 50V J NPO 2.0X1.2 R/TP
C776	0CH4121K416	CHIP CAPA CERAMIC ML.T.C.F/S	120P 50V J NPO 2.0X1.2 R/TP
C777	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C778	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C779	0CE3356K618	CAPACITOR,FIXED ELECTROLYTIC	3.3UF SMS SG 50V 20% FL TP 5
C780	0CE3356K618	CAPACITOR,FIXED ELECTROLYTIC	3.3UF SMS SG 50V 20% FL TP 5
C781	0CH1123K566	CAPACITOR,FIXED CERAMIC(Temp.c)	0.012UF 50V 10% X7R(X) 2012 R/
C782	0CH1334F946	CAPACITOR,FIXED CERAMIC(Temp.c)	0.033UF 16V 80%,-20% Y5V(F) 201
C783	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C784	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C785	0CH1562K516	CHIP CAPA CERAMIC ML.H.D.F/S	5600P 50V K B 2.0X1.2 R/TP
C786	0CH1562K516	CHIP CAPA CERAMIC ML.H.D.F/S	5600P 50V K B 2.0X1.2 R/TP
C787	0CH4121K416	CHIP CAPA CERAMIC ML.T.C.F/S	120P 50V J NPO 2.0X1.2 R/TP
C788	0CH4121K416	CHIP CAPA CERAMIC ML.T.C.F/S	120P 50V J NPO 2.0X1.2 R/TP
C789	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C790	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C791	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C792	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C793	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C794	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C795	0CE1066F618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 16V 20% FL TP 5
C796	0CE1066F618	CAPACITOR,FIXED ELECTROLYTIC	10UF SMS SG 16V 20% FL TP 5
C797	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C798	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C799	0CH4101K416	CAPA,CHIP CERAMIC ML.T.C.F/S	100P 50V J NPO 2.0*1.25 R/TP
C8	0CX2200K409	CAPACITOR TUBULA(T.C.)	22P 50V J SL TA52
C800	0CH4101K416	CAPA,CHIP CERAMIC ML.T.C.F/S	100P 50V J NPO 2.0*1.25 R/TP
C801	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C802	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C803	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C804	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C805	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C806	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C807	0CH4101K416	CAPA,CHIP CERAMIC ML.T.C.F/S	100P 50V J NPO 2.0*1.25 R/TP
C808	0CH4101K416	CAPA,CHIP CERAMIC ML.T.C.F/S	100P 50V J NPO 2.0*1.25 R/TP
C809	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C810	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C811	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C812	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C813	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C814	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C815	0CH4101K416	CAPA,CHIP CERAMIC ML.T.C.F/S	100P 50V J NPO 2.0*1.25 R/TP
C816	0CH1224H946	CAPACITOR,FIXED CERAMIC(Temp.c)	0.22UF 25V 80%,-20% Y5V(F) 201
C817	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C818	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C819	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C820	0CE4766H618	CAPACITOR,ELECTROLYTIC	47M SMS 25V M FL TP(5)
C821	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C822	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C823	0CE4756K618	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SMS SG 50V 20% FL TP 5
C824	0CH4471K416	CAPA,CHIP CERAMIC ML.T.C.F/S	470P 50V J 2.0*1.25 R/TP
C825	0CH4471K416	CAPA,CHIP CERAMIC ML.T.C.F/S	470P 50V J 2.0*1.25 R/TP
C826	0CH4471K416	CAPA,CHIP CERAMIC ML.T.C.F/S	470P 50V J 2.0*1.25 R/TP
C829	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C834	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C835	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C836	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C843	0CE2276F618	CAPACITOR,ELECTROLYTIC	220M SMS 16V M FM5 TP(5)
C844	0CE2276F618	CAPACITOR,ELECTROLYTIC	220M SMS 16V M FM5 TP(5)
C847	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C848	0CH1104K946	CAPA,CHIP CERAMIC ML.H.D.F/S	0.1UF 50V Z Y5V(F) 2012 R/TP
C849	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C850	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C9	0CE1066K618	CAPACITOR,ELECTROLYTIC	10M SMS 50V M FM5 TP(5)
C901	0CH4220K416	CAPA,CHIP CERAMIC ML.T.C.F/S	22P 50V J NPO 2.0X1.25 R/TP
C902	0CH4220K416	CAPA,CHIP CERAMIC ML.T.C.F/S	22P 50V J NPO 2.0X1.25 R/TP
C903	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C904	0CE2268H618	CAPACITOR,ELECTROLYTIC	22M SMS 25V M FM5 TP(5)
C905	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C906	624-074B	CAPACITOR	SUPER CAP 0.1F/5.5V TP/S
C908	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C909	0CE2276F618	CAPACITOR,ELECTROLYTIC	220M SMS 16V M FM5 TP(5)
C910	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C911	0CN4710K519	CAPACITOR TUBULA(HIGH DIELE)	470P 50V K B TA52
C912	0CN1030F679	CAPACITOR TUBULA(HIGH DIELE)	10000P 16V M Y TA52
C913	0CN1030F679	CAPACITOR TUBULA(HIGH DIELE)	10000P 16V M Y TA52
C915	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C916	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C917	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C918	0CN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C919	0CN1210K519	CAPACITOR TUBULA(HIGH DIELE)	120P 50V K B TA52
C920	0CN1010K519	CAPACITOR TUBULA(HIGH DIELE)	100P 50V K B TA52
C921	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C922	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C961	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C962	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C963	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C964	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C965	0CQ2231N409	CAPACITOR,POLYESTER(MYLAR)	0.022U 100V J POLY TP
C966	0CQ2231N409	CAPACITOR,POLYESTER(MYLAR)	0.022U 100V J POLY TP
C967	0CQ2231N409	CAPACITOR,POLYESTER(MYLAR)	0.022U 100V J POLY TP
C968	0CQ2231N409	CAPACITOR,POLYESTER(MYLAR)	0.022U 100V J POLY TP
C969	0CQ1821N409	CAPACITOR,POLYESTER(MYLAR)	0.0018U 100V J POLY TP
C970	0CQ1821N409	CAPACITOR,POLYESTER(MYLAR)	0.0018U 100V J POLY TP
C971	0CH4470K416	CAPA,CHIP CERAMIC ML.T.C.F/S	47P 50V J NPO 2.0X1.25 R/TP
C972	0CH4470K416	CAPA,CHIP CERAMIC ML.T.C.F/S	47P 50V J NPO 2.0X1.25 R/TP
C973	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C975	0CE4763H630	CAPACITOR,FIXED ELECTROLYTIC	47UF SRE,SE 25V 20% FM5 BULK
C976	0CE4763H630	CAPACITOR,FIXED ELECTROLYTIC	47UF SRE,SE 25V 20% FM5 BULK
C977	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C978	0CE4753K638	CAPACITOR,FIXED ELECTROLYTIC	4.7UF SRE,SE 50V 20% FM5 TP 5
C979	0CE4763H630	CAPACITOR,FIXED ELECTROLYTIC	47UF SRE,SE 25V 20% FM5 BULK
C980	0CN5610K519	CAPACITOR TUBULA(HIGH DIELE)	560P 50V K B TA52
C981	0CN5610K519	CAPACITOR TUBULA(HIGH DIELE)	560P 50V K B TA52
C982	0CN5610K519	CAPACITOR TUBULA(HIGH DIELE)	560P 50V K B TA52
C983	0CN5610K519	CAPACITOR TUBULA(HIGH DIELE)	560P 50V K B TA52
C984	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C991	624-086E	CAPACITOR,FIXED CERAMIC(High d)	AC-CON 472400V(SC)
C992	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C993	0CN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80%,-20% F(Y5V) TA
C994	0CN1520F669	CAPACITOR TUBULA(HIGH DIELE)	1500P 16V M X TA52
C995	0CN1520F669	CAPACITOR TUBULA(HIGH DIELE)	1500P 16V M X TA52
C996	0CK4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%,-20% F(Y5V) T
C997	0CK4720K945	CAPACITOR,FIXED CERAMIC(High d)	4700PF D 50V 80%,-20% F(Y5V) T

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
C998	OCN1040K949	CAPACITOR,FIXED TUBULAR(High d)	0.1UF D 50V 80°.~20% F(Y5V) TA
CA481	624-086M	CAPACITOR,FIXED CERAMIC(High d)	0.068UF D 275V 20% FM A
		COIL	
L1	6140RZC002A	COIL,CHOKE	SPRING COIL 1451-000-030 KWANG
L201	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L351	OLA0272K019	INDUCTOR AXIAL LEAD	27M K 2.3X3.4 L5 TP(52MM)
L352	OLA0272K019	INDUCTOR AXIAL LEAD	27M K 2.3X3.4 L5 TP(52MM)
L403	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L404	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L405	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L406	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L407	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L408	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L409	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L410	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L411	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L412	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L413	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L414	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L415	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L501	6140RZC002A	COIL,CHOKE	SPRING COIL 1451-000-030 KWANG
L502	6140RZC002A	COIL,CHOKE	SPRING COIL 1451-000-030 KWANG
L601	6140RZC002A	COIL,CHOKE	SPRING COIL 1451-000-030 KWANG
L602	6140RZC002A	COIL,CHOKE	SPRING COIL 1451-000-030 KWANG
L702	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L703	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L704	OLA0472K019	INDUCTOR AXIAL LEAD	47M K 2.3X3.4 L5 TP(52MM)
L901	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
L991	6140RZC003A	COIL,CHOKE	BEAD COIL HC-3550 KWANGSUNG KW
		DIODE (& ZENER DIODE)	
D1	ODD133009AB	DIODE,SWITCHING	12
D102	ODD133009AB	DIODE,SWITCHING	12
D103	ODD133009AB	DIODE,SWITCHING	12
D104	ODD133009AB	DIODE,SWITCHING	12
D105	ODD133009AB	DIODE,SWITCHING	12
D2	ODD133009AB	DIODE,SWITCHING	12
D401	ODRGS00120A	DIODE,RECTIFIERS	FRONTIER BU6-04F GENERAL SEMIC
D402	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D403	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D404	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D405	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D406	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D407	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D408	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D409	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D410	ODZ510009AH	DIODE,ZENER	GDZJ5.1B TP GRANDE DO-34 500MW
D481	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D482	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D483	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D484	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D485	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D486	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D487	ODD133009AB	DIODE,SWITCHING	12
D488	ODD133009AB	DIODE,SWITCHING	12
D489	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D490	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D491	ODZ30009AE	DIODE,ZENERS	MTZ30D,T-72(52MM) TP ROHM --
D492	ODD133009AB	DIODE,SWITCHING	12

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
D494	ODZ750009AE	DIODE,ZENER	GDZJ7.5C TP GRANDE DO-34 500MW
D496	ODD2470009ED	DIODE,ZENERS	MTZ4.7B T-72(52MM) TP ROHM --
D501	ODD133009AB	DIODE,SWITCHING	12
D502	ODD133009AB	DIODE,SWITCHING	12
D503	ODD133009AB	DIODE,SWITCHING	12
D504	ODD133009AB	DIODE,SWITCHING	12
D51	ODD133009AB	DIODE,SWITCHING	12
D52	ODD133009AB	DIODE,SWITCHING	12
D53	ODD133009AB	DIODE,SWITCHING	12
D54	ODD133009AB	DIODE,SWITCHING	12
D55	ODD133009AB	DIODE,SWITCHING	12
D56	ODD133009AB	DIODE,SWITCHING	12
D57	ODD133009AB	DIODE,SWITCHING	12
D58	ODD133009AB	DIODE,SWITCHING	12
D59	ODD133009AB	DIODE,SWITCHING	12
D60	ODD133009AB	DIODE,SWITCHING	12
D61	ODD133009AB	DIODE,SWITCHING	12
D62	ODD133009AB	DIODE,SWITCHING	12
D901	ODD400400BA	DIODE,RECTIFIERS	1N4004 BK PYUNGCHANG -----
D902	ODD133009AB	DIODE,SWITCHING	12
D903	ODD133009AB	DIODE,SWITCHING	12
D911	ODD133009AB	DIODE,SWITCHING	12
D912	ODD133009AB	DIODE,SWITCHING	12
D913	ODD133009AB	DIODE,SWITCHING	12
D914	ODD133009AB	DIODE,SWITCHING	12
D915	ODD133009AB	DIODE,SWITCHING	12
D916	ODD133009AB	DIODE,SWITCHING	12
D917	ODD133009AB	DIODE,SWITCHING	12
D918	ODD133009AB	DIODE,SWITCHING	12
D919	ODD133009AB	DIODE,SWITCHING	12
D920	ODD133009AB	DIODE,SWITCHING	12
		DIGITRON	
FLT901	6302RZV001A	DIGITRON	CM2012C NORITAKE SEG VFD FA-98 FILTER
R704	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R708	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R709	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R710	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R711	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R712	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R713	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R732	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R733	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R734	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R813	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R814	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R821	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R822	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R829	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
R830	6200JB8006M	FILTER(CIRC),EMC	HB-1T2012-601 2012 CERATECH CE
		FUSE	
FU401	0FT2501B513	FUSE TIME LAG	2500MA 250 V 5.2X20 CY/GL SEMK
FU402	0FT2501B513	FUSE TIME LAG	2500MA 250 V 5.2X20 CY/GL SEMK
FU403	0FT2501B513	FUSE TIME LAG	2500MA 250 V 5.2X20 CY/GL SEMK

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
FU404	0FS8001B51B	FUSE,SLOW BLOW	FUSE 8000mA 250 V 5.2X20 CY/GL
FU405	0FS8001B51B	FUSE,SLOW BLOW	FUSE 8000mA 250 V 5.2X20 CY/GL
	IC		
IC101	0IPRPRJR003A	IC,PERIPHERALS	NU7312AM JRC 30PIN SOP ST ANAL
IC102	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC103	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC104	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC105	0IPRPRJR006A	IC,PERIPHERALS	NU7313AM JRC 30PIN SOP R/T/P SW
IC106	0IPRPRJR005A	IC,PERIPHERALS	NU7311AM JRC 30PIN SOP R/T/P C
IC107	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC108	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC109	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC110	0IPRPT0001A	IC,PERIPHERALS	TC9482F TOSHIBA 28P SOP R/T/P 6
IC111	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC112	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC113	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC114	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC115	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC351	0JR223600A	IC,JRC	NJM22361 16P SOP TP VIDEO SW 5
IC401	0IKE781200P	IC,KEC	KIA7812API TO220 ST 3P 12V REG
IC402	0ISS791500A	IC,SAMSUNG SEMICONDUCTOR	KAT915 ST REGULATOR IC S/S
IC404	0IKE780500Q	IC,KEC	KIA7805API 3P TO-220 ST REGULA
IC405	0IKE780500Q	IC,KEC	KIA7805API 3P TO-220 ST REGULA
IC481	0IKE780500Q	IC,KEC	KIA7805API 3P TO-220 ST REGULA
IC701	0ICB841500C	IC,CRYSTAL SEMICONDUCTOR	CS8415A-CSR 28 SSOP R/T/P AUDI
IC702	0IFA742440G	IC,FAIRCHILD	74VHC244SJ 20P SOIC TP LINE DR
IC703	0ISTLFA033A	IC,STANDARD LOGIC	74VHCT244ASJX FAIRCHILD 20P SO
IC704	0ILNRC1002A	IC,LINEAR	CS493263-CLR CIRRUS LOGIC 44 P
IC705	0ICB422800B	IC,CRYSTAL SEMICONDUCTOR	CS4228A-KSR 28 SSOP R/T/P 24BT
IC706	0ILNJR005A	IC,LINEAR	NJM072M JRC 8PIN SOP TP DUAL J
IC707	0ILNJR005A	IC,LINEAR	NJM072M JRC 8PIN SOP TP DUAL J
IC708	0ILNJR005A	IC,LINEAR	NJM072M JRC 8PIN SOP TP DUAL J
IC709	0ILNJR005A	IC,LINEAR	NJM072M JRC 8PIN SOP TP DUAL J
IC710	0ILNJR005A	IC,LINEAR	NJM072M JRC 8PIN SOP TP DUAL J
IC711	0IPRPRJ005A	IC,PERIPHERALS	NU7311AM JRC 30PIN SOP R/T/P C
IC712	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC713	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC714	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC715	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC716	0IPMGJ004A	IC,POWER MANAGEMENT	NJM2391DL-25 JRC 3P TO-252 R
IC717	0IPMGJ001A	IC,POWER MANAGEMENT	NJM2391DL-33 JRC TO-252 TP RE
IC718	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC901	0IMCRSO011A	IC,MICRO CONTROLLER	CXP82852-3180 SONY 100 QFP TRA
IC902	0IPRPRJ007A	IC,PERIPHERALS	NUJ3713G JRC 18P SOP ST MICOM
IC903	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC904	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
IC905	0JRC455800B	IC,JRC(JAPAN RADIO CORP.)	NJM4558L(DUAL OP-AMP) SIP8
	JACK		
JK401	6612J00006A	JACK,RCA	JW4105RSS-1 JAEWON
JK402	6612J00002B	JACK,RCA	JW1409S5 JAEWON 1P
JK702	6612R-L002A	JACK,FIBER OPTIC	TORX178 TOSHIBA ..
JK703	6612J00002A	JACK,RCA	JW-1409S JAEWON 1P,GND ORANGE
JP101	6612J00005A	JACK,RCA	JW4104RS JAEWON 4P,GND
JP102	6612J00005A	JACK,RCA	JW4104RS JAEWON 4P,GND
JP103	6612J00006B	JACK,RCA	JW4105RSS-2 JAEWON 6P
JP351	6612J00003A	JACK,RCA	JW-1502S JAEWON 2P,GND YELLOW
JP352	6612J00004A	JACK,RCA	JW-1503S JAEWON 3P,GND YELLOW
JP901	6612J00001A	JACK,RCA	JW1504G JAEWON 3P,Y/W,R.GOLD

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
JP991	6612F00002A	JACK,PHONE	HTJ-064-07BG KUNMING 1P,GOLD
	LED		
LED901	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED902	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED903	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED904	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED905	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED906	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED907	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED908	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
LED909	0DLRH0049AA	LED	ROHM SLR-342VRT32 TP RED 60 M
	RESISTOR		
R02	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D
R03	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D
R04	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D
R05	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D
R06	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D
R07	0RH0000D622	RESISTOR,METAL GLAZED(CHIP)	0 OHM 1 / 10 W 2012 5.00% D
R1	0RD2201F609	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/6 W 5.00% TA52
R10	0RD7500F609	RESISTOR,FIXED CARBON FILM	750 OHM 1/6 W 5.00% TA52
R101	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R102	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R103	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R104	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R105	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R106	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R107	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R108	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R109	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R11	0RD7500F609	RESISTOR,FIXED CARBON FILM	750 OHM 1/6 W 5.00% TA52
R110	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R111	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R112	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R113	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R114	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R115	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R116	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R117	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R118	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R119	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R12	0RD1801F609	RESISTOR,FIXED CARBON FILM	1.8K OHM 1/6 W 5.00% TA52
R120	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R121	0RH471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R122	0RH471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R123	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R124	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R125	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R126	0RH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R127	0RH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R128	0RH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R129	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R13	0RD3302F609	RESISTOR,FIXED CARBON FILM	33K OHM 1/6 W 5.00% TA52
R130	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R131	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R132	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R133	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R134	0RH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R135	0RH8201D622	RESISTOR,METAL GLAZED(CHIP)	8.2K OHM 1 / 10 W 2012 5.00% D

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
R19	0RD4701F609	RESISTOR,FIXED CARBON FILM	4.7K OHM 1/6 W 5.00% TA52
R190	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R191	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R192	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R193	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R194	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R195	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R196	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R197	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R198	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R199	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R2	0RD3302F609	RESISTOR,FIXED CARBON FILM	33K OHM 1/6 W 5.00% TA52
R200	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R201	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R202	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R203	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R204	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R205	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R206	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R207	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R208	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R209	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R210	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R211	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R212	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R213	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R214	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R215	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R216	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R217	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R218	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R219	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R22	0RF1000G609	RESISTOR,DRAWING	100 OHM 1/4 W 5.00% TA52
R220	0RH2702D622	RESISTOR,METAL GLAZED(CHIP)	27K OHM 1 / 10 W 2012 5.00% D
R221	0RH2702D622	RESISTOR,METAL GLAZED(CHIP)	27K OHM 1 / 10 W 2012 5.00% D
R222	0RH2001D622	RESISTOR,METAL GLAZED(CHIP)	2K OHM 1 / 10 W 2012 5.00% D
R223	0RH2001D622	RESISTOR,METAL GLAZED(CHIP)	2K OHM 1 / 10 W 2012 5.00% D
R224	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R225	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R226	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R227	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R228	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R229	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R23	0RF1000G609	RESISTOR,DRAWING	100 OHM 1/4 W 5.00% TA52
R230	0RH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R231	0RH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R232	0RH1802D622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 10 W 2012 5.00% D
R233	0RH1802D622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 10 W 2012 5.00% D
R234	0RH1802D622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 10 W 2012 5.00% D
R235	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R236	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R237	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R238	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R239	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R24	0RD2202F609	RESISTOR,FIXED CARBON FILM	22K OHM 1/6 W 5.00% TA52
R240	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R241	0RH2702D622	RESISTOR,METAL GLAZED(CHIP)	27K OHM 1 / 10 W 2012 5.00% D
R242	0RH2702D622	RESISTOR,METAL GLAZED(CHIP)	27K OHM 1 / 10 W 2012 5.00% D
R243	0RH2001D622	RESISTOR,METAL GLAZED(CHIP)	2K OHM 1 / 10 W 2012 5.00% D

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
R244	0RH2001D622	RESISTOR,METAL GLAZED(CHIP)	2K OHM 1/10 W 2012 5.00% D
R245	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R246	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R247	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R248	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R249	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R25	0RD2202F605	RESISTOR,FIXED CARBON FILM	22K OHM 1.6 W 5.00% TA52
R250	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R251	0RH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R252	0RH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R253	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R254	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R255	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R256	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R257	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R258	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R259	0RH5602D622	RESISTOR,METAL GLAZED(CHIP)	56K OHM 1 / 10 W 2012 5.00% D
R26	0RD1201F609	RESISTOR,FIXED CARBON FILM	1.2K OHM 1.6 W 5.00% TA52
R260	0RH5602D622	RESISTOR,METAL GLAZED(CHIP)	56K OHM 1 / 10 W 2012 5.00% D
R261	0RH7501D622	RESISTOR,METAL GLAZED(CHIP)	7.5K OHM 1 / 10 W 2012 5.00% D
R262	0RH7501D622	RESISTOR,METAL GLAZED(CHIP)	7.5K OHM 1 / 10 W 2012 5.00% D
R263	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R264	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R265	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R266	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R267	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R268	0RH3300D622	RESISTOR,METAL GLAZED(CHIP)	330 OHM 1 / 10 W 2012 5.00% D
R269	0RH1802D622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 10 W 2012 5.00% D
R27	0RD1800F609	RESISTOR,FIXED CARBON FILM	180 OHM 1.6 W 5.00% TA52
R270	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R271	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R272	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R273	0RH1001D622	RESISTOR,METAL GLAZED(CHIP)	1K OHM 1 / 10 W 2012 5.00% D
R274	0RH1003D622	RESISTOR,METAL GLAZED(CHIP)	100K OHM 1 / 10 W 2012 5.00% D
R275	0RH1003D622	RESISTOR,METAL GLAZED(CHIP)	100K OHM 1 / 10 W 2012 5.00% D
R276	0RH1203D622	RESISTOR,METAL GLAZED(CHIP)	120K OHM 1 / 10 W 2012 5.00% D
R277	0RH1203D622	RESISTOR,METAL GLAZED(CHIP)	120K OHM 1 / 10 W 2012 5.00% D
R278	0RH1002D622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 10 W 2012 5.00% D
R279	0RH1002D622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 10 W 2012 5.00% D
R28	0RD0822F609	RESISTOR,FIXED CARBON FILM	82 OHM 1.6 W 5.00% TA52
R280	0RH0102D622	RESISTOR,METAL GLAZED(CHIP)	10 OHM 1 / 10 W 2012 5.00% D
R281	0RH0102D622	RESISTOR,METAL GLAZED(CHIP)	10 OHM 1 / 10 W 2012 5.00% D
R282	0RH2201D622	RESISTOR,METAL GLAZED(CHIP)	2.2K OHM 1 / 10 W 2012 5.00% D
R283	0RH2201D622	RESISTOR,METAL GLAZED(CHIP)	2.2K OHM 1 / 10 W 2012 5.00% D
R284	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R285	0RH0471D622	RESISTOR,METAL GLAZED(CHIP)	4.7 OHM 1 / 10 W 2012 5.00% D
R287	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R289	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R29	0RD5602F609	RESISTOR,FIXED CARBON FILM	56K OHM 1.6 W 5.00% TA52
R291	0RH2203D622	RESISTOR,METAL GLAZED(CHIP)	220K OHM 1 / 10 W 2012 5.00% D
R293	0RH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R295	0RH2201D622	RESISTOR,METAL GLAZED(CHIP)	2.2K OHM 1 / 10 W 2012 5.00% D
R296	0RH1802D622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 10 W 2012 5.00% D
R3	0RD0152F609	RESISTOR,FIXED CARBON FILM	15 OHM 1.6 W 5.00% TA52
R30	0RN0102G609	RESISTOR,FIXED METAL FILM	10 OHM 1/4 W 5.00% TA52
R31	0RN0102G609	RESISTOR,FIXED METAL FILM	10 OHM 1/4 W 5.00% TA52
R32	0RD0392F609	RESISTOR,FIXED CARBON FILM	39 OHM 1.6 W 5.00% TA52
R321	0RH1802D622	RESISTOR,METAL GLAZED(CHIP)	18K OHM 1 / 10 W 2012 5.00% D
R33	0RD0392F609	RESISTOR,FIXED CARBON FILM	39 OHM 1.6 W 5.00% TA52

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
R34	ORD0392F609	RESISTOR,FIXED CARBON FILM	39 OHM 1/6 W 5.00% TA52
R35	ORD0392F609	RESISTOR,FIXED CARBON FILM	39 OHM 1/6 W 5.00% TA52
R351	ORD0752F609	RESISTOR,FIXED CARBON FILM	75 OHM 1/6 W 5.00% TA52
R352	ORD0752F609	RESISTOR,FIXED CARBON FILM	75 OHM 1/6 W 5.00% TA52
R353	ORD0752F609	RESISTOR,FIXED CARBON FILM	75 OHM 1/6 W 5.00% TA52
R354	ORD0752F609	RESISTOR,FIXED CARBON FILM	75 OHM 1/6 W 5.00% TA52
R355	ORD0752F609	RESISTOR,FIXED CARBON FILM	75 OHM 1/6 W 5.00% TA52
R36	ORD0102F609	RESISTOR,FIXED CARBON FILM	10 OHM 1/6 W 5.00% TA52
R39	0RF1002G62E	RESISTOR,DRAWING	RES MPP DUAL 0.22 OHM 5W J
R4	ORD0152F609	RESISTOR,FIXED CARBON FILM	15 OHM 1/6 W 5.00% TA52
R401	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R402	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R403	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R404	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R405	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R406	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R407	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R408	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R409	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R410	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R411	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R412	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R413	0RN0102J600	RESISTOR,FIXED METAL FILM	10 OHM 1 W 5.00% A
R414	0RN0102J600	RESISTOR,FIXED METAL FILM	10 OHM 1 W 5.00% A
R415	0RN0102J600	RESISTOR,FIXED METAL FILM	10 OHM 1 W 5.00% A
R416	0RN0102J600	RESISTOR,FIXED METAL FILM	10 OHM 1 W 5.00% A
R417	0RN0102J600	RESISTOR,FIXED METAL FILM	10 OHM 1 W 5.00% A
R418	0RN0222J600	RESISTOR,FIXED METAL FILM	22 OHM 1 W 5.00% A
R419	0RN0222J600	RESISTOR,FIXED METAL FILM	22 OHM 1 W 5.00% A
R420	0RN0222J600	RESISTOR,FIXED METAL FILM	22 OHM 1 W 5.00% A
R421	0RN0222J600	RESISTOR,FIXED METAL FILM	22 OHM 1 W 5.00% A
R422	0RN0102J600	RESISTOR,FIXED METAL FILM	10 OHM 1 W 5.00% A
R427	0RD9100G609	RESISTOR,FIXED CARBON FILM	910 OHM 1/4 W 5.00% TA52
R433	0RD9100G609	RESISTOR,FIXED CARBON FILM	910 OHM 1/4 W 5.00% TA52
R434	0RD9100G609	RESISTOR,FIXED CARBON FILM	910 OHM 1/4 W 5.00% TA52
R435	0RD0101G609	RESISTOR,FIXED CARBON FILM	1 OHM 1/4 W 5.00% TA52
R436	0RD0101G609	RESISTOR,FIXED CARBON FILM	1 OHM 1/4 W 5.00% TA52
R482	0RD2201G609	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/4 W 5.00% TA52
R483	0RD1001F609	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA52
R484	0RD1002F609	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA52
R485	0RN0222F609	RESISTOR,FIXED METAL FILM	22 OHM 1/6 W 5.00% TA52
R486	0RD2201F609	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/6 W 5.00% TA52
R487	0RD5600G609	RESISTOR,FIXED CARBON FILM	560 OHM 1/4 W 5.00% TA52
R488	0RD0101G609	RESISTOR,FIXED CARBON FILM	1 OHM 1/4 W 5.00% TA52
R489	0RD0101G609	RESISTOR,FIXED CARBON FILM	1 OHM 1/4 W 5.00% TA52
R491	0RD4700G809	RESISTOR,FIXED CARBON FILM	470 OHM 1/4 W 5.00% TA52
R493	0RD7501F609	RESISTOR,FIXED CARBON FILM	7.5K OHM 1/6 W 5.00% TA52
R5	0RD0682F609	RESISTOR,FIXED CARBON FILM	68 OHM 1/6 W 5.00% TA52
R501	0RD2201F609	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/6 W 5.00% TA52
R502	0RD2201F609	RESISTOR,FIXED CARBON FILM	2.2K OHM 1/6 W 5.00% TA52
R503	0RD3302F609	RESISTOR,FIXED CARBON FILM	33K OHM 1/6 W 5.00% TA52
R504	0RD3302F609	RESISTOR,FIXED CARBON FILM	33K OHM 1/6 W 5.00% TA52
R505	0RD0152F609	RESISTOR,FIXED CARBON FILM	15 OHM 1/6 W 5.00% TA52
R506	0RD0152F609	RESISTOR,FIXED CARBON FILM	15 OHM 1/6 W 5.00% TA52
R507	0RD0152F609	RESISTOR,FIXED CARBON FILM	15 OHM 1/6 W 5.00% TA52
R508	0RD0152F609	RESISTOR,FIXED CARBON FILM	15 OHM 1/6 W 5.00% TA52
R509	0RD682F609	RESISTOR,FIXED CARBON FILM	68 OHM 1/6 W 5.00% TA52
R51	0RD1002F609	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA52
R510	0RD682F609	RESISTOR,FIXED CARBON FILM	68 OHM 1/6 W 5.00% TA52

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
R936	ORD2701F609	RESISTOR,FIXED CARBON FILM	2.7K OHM 1/6 W 5.00% TA52
R937	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R938	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R939	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R940	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R941	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R942	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R943	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R944	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R945	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R946	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R947	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R948	ORD3300F609	RESISTOR,FIXED CARBON FILM	330 OHM 1/6 W 5.00% TA52
R949	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R950	ORD2203F609	RESISTOR,FIXED CARBON FILM	220K OHM 1/6 W 5.00% TA52
R951	ORD0752F609	RESISTOR,FIXED CARBON FILM	75 OHM 1/6 W 5.00% TA52
R952	ORD1800G609	RESISTOR,FIXED CARBON FILM	180 OHM 1/4 W 5.00% TA52
R953	ORD1800G609	RESISTOR,FIXED CARBON FILM	180 OHM 1/4 W 5.00% TA52
R954	ORD1800F609	RESISTOR,FIXED CARBON FILM	180 OHM 1/6 W 5.00% TA52
R955	ORD1800F609	RESISTOR,FIXED CARBON FILM	180 OHM 1/6 W 5.00% TA52
R956	ORD1800F609	RESISTOR,FIXED CARBON FILM	180 OHM 1/6 W 5.00% TA52
R957	ORD0126G609	RESISTOR,FIXED CARBON FILM	10 OHM 1/4 W 5.00% TA52
R958	ORD1001F609	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA52
R959	ORD5602F609	RESISTOR,FIXED CARBON FILM	56K OHM 1/6 W 5.00% TA52
R960	ORD5602F609	RESISTOR,FIXED CARBON FILM	56K OHM 1/6 W 5.00% TA52
R961	ORH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R962	ORH1000D622	RESISTOR,METAL GLAZED(CHIP)	100 OHM 1 / 10 W 2012 5.00% D
R963	ORH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R964	ORH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R965	ORH1202D622	RESISTOR,METAL GLAZED(CHIP)	12K OHM 1 / 10 W 2012 5.00% D
R966	ORH1202D622	RESISTOR,METAL GLAZED(CHIP)	12K OHM 1 / 10 W 2012 5.00% D
R967	ORH8201D622	RESISTOR,METAL GLAZED(CHIP)	8.2K OHM 1 / 10 W 2012 5.00% D
R968	ORH8201D622	RESISTOR,METAL GLAZED(CHIP)	8.2K OHM 1 / 10 W 2012 5.00% D
R969	ORH2200D622	RESISTOR,METAL GLAZED(CHIP)	220 OHM 1 / 10 W 2012 5.00% D
R970	ORH2200D622	RESISTOR,METAL GLAZED(CHIP)	220 OHM 1 / 10 W 2012 5.00% D
R971	ORH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R972	ORH4703D622	RESISTOR,METAL GLAZED(CHIP)	470K OHM 1 / 10 W 2012 5.00% D
R973	ORH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R974	ORH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R975	ORH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R976	ORH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R977	ORH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R978	ORH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R979	ORH2202D622	RESISTOR,METAL GLAZED(CHIP)	22K OHM 1 / 10 W 2012 5.00% D
R980	ORD2202F609	RESISTOR,FIXED CARBON FILM	22K OHM 1/6 W 5.00% TA52
R981	ORD1002F609	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA52
R982	ORD1002F609	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA52
R983	ORD1002F609	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA52
R984	ORD1002F609	RESISTOR,FIXED CARBON FILM	10K OHM 1/6 W 5.00% TA52
R985	ORH0472D622	RESISTOR,METAL GLAZED(CHIP)	47 OHM 1 / 10 W 2012 5.00% D
R986	ORH0472D622	RESISTOR,METAL GLAZED(CHIP)	47 OHM 1 / 10 W 2012 5.00% D
R987	ORH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R988	ORH4702D622	RESISTOR,METAL GLAZED(CHIP)	47K OHM 1 / 10 W 2012 5.00% D
R989	ORD0102F609	RESISTOR,FIXED CARBON FILM	10 OHM 1/6 W 5.00% TA52
R990	ORD0102F609	RESISTOR,FIXED CARBON FILM	10 OHM 1/6 W 5.00% TA52
R991	ORH1002D622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 10 W 2012 5.00% D
R992	ORH1002D622	RESISTOR,METAL GLAZED(CHIP)	10K OHM 1 / 10 W 2012 5.00% D
R993	ORD1001F609	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA52
R994	ORD1001F609	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA52

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
R995	ORD1001F609	RESISTOR,FIXED CARBON FILM	1K OHM 1/6 W 5.00% TA52
R996	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R997	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
R998	ORD4702F609	RESISTOR,FIXED CARBON FILM	47K OHM 1/6 W 5.00% TA52
RA910	ORR1002062D	RESISTOR,DRAWING	RES ARRAY RMNS-10-104 11P 100K
		RELAY	
RL481	6920R-B205A	RELAY	SDT-S-112DMP OEG 125VAC 5A 24V
		REMOTE CONTROLLER RECEIVER	
RMT901	6712R1638GA	REMOTE CONTROLLER RECEIVER	TSOP1838RF1 TEMIC 16MM 37.9KHZ
		SWITCH	
SW901	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW902	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW903	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW904	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW905	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW906	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW907	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW908	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW909	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW910	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW911	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW912	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW913	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW914	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW915	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW916	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW917	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW918	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW919	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW920	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW921	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW922	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW923	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW924	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW925	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW926	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW927	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW928	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW929	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW930	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW931	556-219B	SWITCH,TACT	THV502GAA POSTECH NON 12V 5A
SW991	6600M000001	SWITCH,PUSH	POSTECH ULCSA 150V 3A HORIZON
		THERMISTOR	
P51	6322B62202A	THERMISTOR,PTC	P42TB100B04 NANNE 100OHM 20°
		TRANSFORMER	
T481	6170RZB01FM	TRANSFORMER,POWER	230V,50HZ EI41X* SEIL
		TRANSISTOR	
Q1	OTR126809AA	TRANSISTOR,BIPOLARS	KTA1268-GR TP KEC --
Q10	OTR102400AB	TRANSISTOR,BIPOLARS	KTA1024-Y (KTA949) BK KEC --
Q101	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q102	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q103	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q104	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q105	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q106	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q107	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q108	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
Q109	OTR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q11	OTR320609AB	TRANSISTOR,BIPOLARS	KTC3206-Y,TP(KTC2229),KEC
Q110	OTR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q111	OTR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q112	OTR126609AA	TRANSISTOR	KTA1266-TP-Y (KTA1015) KEC
Q113	OTR101009AA	TRANSISTOR	KRA 101M
Q114	OTR101009AA	TRANSISTOR	KRA 101M
Q115	OTR101009AA	TRANSISTOR	KRA 101M
Q116	OTR101009AA	TRANSISTOR	KRA 101M
Q117	OTR103009AE	TRANSISTOR	KRC103M-TP (KRC1203) KEC
Q119	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q12	OTR437000AA	TRANSISTOR,BIPOLARS	KTC4370Y BK KEC TO220I S NPN
Q124	OTR103009AE	TRANSISTOR	KRC103M-TP (KRC1203) KEC
Q127	OTR102009AF	TRANSISTOR	KRC102M,(KRC1202) TP KEC TO92
Q128	OTR102009AF	TRANSISTOR	KRC102M,(KRC1202) TP KEC TO92
Q14	OTR269000BB	TRANSISTOR	KSC2690A-Y PWR DRIVER SAMSUNG
Q15	OTRTH10003A	TRANSISTOR,BIPOLARS	TOSHIBA 2SC5197-R(AC) ST NON.
Q16	OTRTH10002A	TRANSISTOR,BIPOLARS	TOSHIBA 2SA1940-R(AC) ST NON.
Q2	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q3	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q4	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q481	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q482	OTR103009AE	TRANSISTOR	KRC103M-TP (KRC1203) KEC
Q5	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q501	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q502	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q503	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q504	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q505	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q506	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q507	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q508	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q509	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q51	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q510	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q511	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q512	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q513	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q514	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q519	OTR102400AB	TRANSISTOR,BIPOLARS	KTA1024-Y (KTA949) BK KEC --
Q52	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q520	OTR102400AB	TRANSISTOR,BIPOLARS	KTA1024-Y (KTA949) BK KEC --
Q521	OTR269009AB	TRANSISTOR,BIPOLARS	KTC3206-Y,TP(KTC2229),KEC
Q522	OTR320609AB	TRANSISTOR,BIPOLARS	KTC3206-Y,TP(KTC2229),KEC
Q523	OTR437000AA	TRANSISTOR,BIPOLARS	KTC4370Y BK KEC TO220I S NPN
Q524	OTR437000AA	TRANSISTOR,BIPOLARS	KTC4370Y BK KEC TO220I S NPN
Q527	OTR269000BB	TRANSISTOR	KSC2690A-Y PWR DRIVER SAMSUNG
Q528	OTR269000BB	TRANSISTOR	KSC2690A-Y PWR DRIVER SAMSUNG
Q529	OTRTH10003A	TRANSISTOR,BIPOLARS	TOSHIBA 2SC5197-R(AC) ST NON.
Q53	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q530	OTRTH10003A	TRANSISTOR,BIPOLARS	TOSHIBA 2SC5197-R(AC) ST NON.
Q531	OTRTH10002A	TRANSISTOR,BIPOLARS	TOSHIBA 2SA1940-R(AC) ST NON.
Q532	OTRTH10002A	TRANSISTOR,BIPOLARS	TOSHIBA 2SA1940-R(AC) ST NON.
Q54	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q55	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q56	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q57	OTR31809AB	TRANSISTOR	KTC318B-TP-GR (KTC1815) KEC
Q58	OTR31809AB	TRANSISTOR	KTC318B-TP-GR (KTC1815) KEC
Q59	OTR31809AB	TRANSISTOR	KTC318B-TP-GR (KTC1815) KEC

LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
Q6	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q60	OTR126609AB	TRANSISTOR	KTA1266-GR TP KEC(KTA1015GR)
Q601	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q602	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q603	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q604	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q605	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q606	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q607	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q608	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q609	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q61	OTR102009AE	TRANSISTOR	KRA102M (KRA2202) TP KEC TO
Q610	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q611	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q612	OTR320009AA	TRANSISTOR	KTC3200-GR (KTC2240) TP KEC TO
Q613	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q614	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q619	OTR102400AB	TRANSISTOR,BIPOLARS	KTA1024-Y (KTA949) BK KEC --
Q62	OTR31809AB	TRANSISTOR	KTC318B-TP-GR (KTC1815) KEC
Q620	OTR102400AB	TRANSISTOR,BIPOLARS	KTA1024-Y (KTA949) BK KEC --
Q621	OTR320609AB	TRANSISTOR,BIPOLARS	KTC3206-Y,TP(KTC2229),KEC
Q622	OTR320609AB	TRANSISTOR,BIPOLARS	KTC3206-Y,TP(KTC2229),KEC
Q623	OTR437000AA	TRANSISTOR,BIPOLARS	KTC4370Y BK KEC TO220I S NPN
Q624	OTR437000AA	TRANSISTOR,BIPOLARS	KTC4370Y BK KEC TO220I S NPN
Q627	OTR269000BB	TRANSISTOR	KSC2690A-Y PWR DRIVER SAMSUNG
Q628	OTR269000BB	TRANSISTOR	KSC2690A-Y PWR DRIVER SAMSUNG
Q629	OTRTH10003A	TRANSISTOR,BIPOLARS	TOSHIBA 2SC5197-R(AC) ST NON.
Q630	OTRTH10003A	TRANSISTOR,BIPOLARS	TOSHIBA 2SC5197-R(AC) ST NON.
Q631	OTRTH10002A	TRANSISTOR,BIPOLARS	TOSHIBA 2SA1940-R(AC) ST NON.
Q632	OTRTH10002A	TRANSISTOR,BIPOLARS	TOSHIBA 2SA1940-R(AC) ST NON.
Q7	OTR126809AA	TRANSISTOR,BIPOLARS	KTA 1268-GR, TP KEC --
Q701	OTR101009AA	TRANSISTOR	KRA 101M
Q702	OTR101009AA	TRANSISTOR	KRA 101M
Q703	OTR101009AA	TRANSISTOR	KRA 101M
Q704	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q705	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q706	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q707	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q708	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q709	OTR130209AA	TRANSISTOR	KTD1302 MUTING TP KEC TO92
Q901	OTR319009AA	TRANSISTOR	KTC319B-TP (2SC3199) TP KEC TO
Q902	OTR103009AE	TRANSISTOR	KRC103M-TP (KRC1203) KEC
	TUNER	TUNER	KST-MB114MA1-1 KS CE 4GANG/2BA
		VARIABLE RESISTOR	
VR1	6110RZRQ04A	VOLUME,ROTARY	RH0638C100471 470 OHM POSTECH
VR501	6110RZRQ04A	VOLUME,ROTARY	RH0638C100471 470 OHM POSTECH
VR502	6110RZRQ04A	VOLUME,ROTARY	RH0638C100471 470 OHM POSTECH
VR601	6110RZRQ04A	VOLUME,ROTARY	RH0638C100471 470 OHM POSTECH
VR602	6110RZRQ04A	VOLUME,ROTARY	RH0638C100471 470 OHM POSTECH
VR901	6110RZRQ06A	VOLUME,ROTARY	EC16B24T018-ZZZ,LG POSTECH 10
VR902	6110RZRQ05A	VOLUME,ROTARY	RK14K128030614B, LG POSTECH PO
VR903	6110RZRQ05A	VOLUME,ROTARY	RK14K128030614B, LG POSTECH PO
VR904	6110RZRQ05B	VOLUME,ROTARY	RK14K128030614Y, LG POSTECH PO
	X-TAL		
X701	6204R-HK01C	OSCILLATOR,STD	KXO-210 BIUBANG AXIAL 12.288MHZ
XT901	6202R-BK02C	CRYSTAL,STANDARD	HC-49/S BIUBANG AXIAL 9.8304MHZ

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
CN01	6631RZY001B	CONNECTOR ASSEMBLY	TJC4-01 1 PIN 250MM FA-985 43
CN13	6631RZY001B	CONNECTOR ASSEMBLY	TJC4-01 1 PIN 250MM FA-985 43
CN408	6850RCHO18A	CABLE,FLAT	P=1.25 FFC UL2896(0.05X0.8) 17
CN53	6631RZG001C	CONNECTOR ASSEMBLY	JE201 / JE210 4 PIN 150MM FA-
CN54	6631RZG001B	CONNECTOR ASSEMBLY	JE201 / JE210 3 PIN 300MM FA-
CN55	6631RZG001A	CONNECTOR ASSEMBLY	JE201 / JE210 2 PIN 470MM FA-
CN901	561-686Z	CONNECTOR	WAFER FPC ELCO 8370-261 26PST
CN902	561-686P	CONNECTOR (CIRC),WAFER	00-8370-161-000-800 ELCO 16PIN
CN904	6631RZF001H	CONNECTOR ASSEMBLY	5264 / 9073AN 2 PIN 170MM FA-
CN906	6631RZF001F	CONNECTOR ASSEMBLY	5264 / 51088 8 PIN 360MM FA-9
CN983	6631RZY002A	CONNECTOR ASSEMBLY	35191 / 35191 2 PIN 450MM FA-
CN984	6850REHP30A	CABLE,FLAT	P=1.25 FFC UL2896(0.05X0.8) 16
CN985	6850REHZ35A	CABLE,FLAT	P=1.25 FFC UL2896(0.05X0.8) 26
H12	6630V01Z001	CONNECTOR (CIRC),WAFER	TJC4-01A HYUN SEUNG 1P SPECIAL
H16	6630V01Z001	CONNECTOR (CIRC),WAFER	TJC4-01A HYUN SEUNG 1P SPECIAL
H701	6631RZY001C	CONNECTOR ASSEMBLY	HI-WAP 1 PIN 130MM FA-985 431
HU101	6630B11L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-11 JAE EUN 11P 2.5(2.54)
HU102	6630B07L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-07 JAE EUN 7P 2.5(2.54)M
HU103	6630B10L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-10 JAE EUN 10P 2.5(2.54)
HU104	6630B07L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-07 JAE EUN 7P 2.5(2.54)M
HU105	6630B11L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-11 JAE EUN 11P 2.5(2.54)
HU106	561-661J	CONNECTOR	WAFER MOLEX,KOREA 5267-10A
HU107	6630B04L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-04 JAE EUN 4P 2.5(2.54)M
HU108	561-661D	CONNECTOR	WAFER MOLEX,KOREA 5267-04A
HU109	6630B11L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-11 JAE EUN 11P 2.5(2.54)
HU851	6630B08L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-08 JAE EUN 8P 2.5(2.54)M
HU51	6631RZF001G	CONNECTOR ASSEMBLY	5264 / 51088 10 PIN 120MM FA-
HU52	6631RZF001B	CONNECTOR ASSEMBLY	5264 / 51088 4 PIN 120MM FA-9
HU701	6630B11L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-11 JAE EUN 11P 2.5(2.54)
HU702	6630B10L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-10 JAE EUN 10P 2.5(2.54)
HU703	6630B10L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-10 JAE EUN 10P 2.5(2.54)
HU704	6630B04L002	CONNECTOR (CIRC),BOARD TO BOAR	JE605-04 JAE EUN 4P 2.5(2.54)M
JK403	6630U04Z001	CONNECTOR (CIRC),TERMINAL	JW-6014B JAE WON 4P SPECIAL
JK404	6630U02Z001	CONNECTOR (CIRC),TERMINAL	JW-6012B JAE WON 2P SPECIAL SP
JK405	6630U04Z001	CONNECTOR (CIRC),TERMINAL	JW-6014B JAE WON 4P SPECIAL
T902	6631RZY001A	CONNECTOR ASSEMBLY	D=3.2 RING 1 PIN 200MM UL1007
T903	6631RZY001A	CONNECTOR ASSEMBLY	D=3.2 RING 1 PIN 200MM UL1007
T904	6631RZY001A	CONNECTOR ASSEMBLY	D=3.2 RING 1 PIN 200MM UL1007
WA1	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA102	561-661H	CONNECTOR	WAFER MOLEX,KOREA 5267-08A
WA103	561-661E	CONNECTOR	WAFER MOLEX,KOREA 5267-05
WA2	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA401	6630V03M002	CONNECTOR (CIRC),WAFER	JE202-1-T-03JAE EUN 3P 3.96M
WA402	561-661E	CONNECTOR	WAFER MOLEX,KOREA 5267-05
WA403	6630V04M001	CONNECTOR (CIRC),WAFER	JE202-1-T-04 JAE EUN 4P 3.96MM
WA404	6630V03M001	CONNECTOR (CIRC),WAFER	JE202-1-T-03 JAE EUN 3P 3.96MM
WA405	561-661F	CONNECTOR	WAFER MOLEX,KOREA 5267-06A
WA406	561-686Z	CONNECTOR	WAFER FPC ELCO 8370-261 26PST
WA407	561-686P	CONNECTOR (CIRC),WAFER	00-8370-161-000-800 ELCO 16PIN
WA408	561-686Q	CONNECTOR (CIRC),FFC/FPC	00-8370-171-000-800 ELCO 17PIN
WA410	6630B11L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-11 JAE EUN 11P 2.5(2.54)
WA411	6630B07L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-07 JAE EUN 7P 2.5(2.54)M
WA412	6630B11L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-11 JAE EUN 11P 2.5(2.54)
WA413	6630B07L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-07 JAE EUN 7P 2.5(2.54)M
WA414	6630B10L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-10 JAE EUN 10P 2.5(2.54)
WA415	6630B11L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-11 JAE EUN 11P 2.5(2.54)
WA416	6630B04L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-04 JAE EUN 4P 2.5(2.54)M

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LOCA. NO.	PART NO.	DESCRIPTION	SPECIFICATION
WA417	6630B11L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-11 JAE EUN 11P 2.5(2.54)
WA418	6630B10L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-10 JAE EUN 10P 2.5(2.54)
WA419	6630B10L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-10 JAE EUN 10P 2.5(2.54)
WA420	6630B04L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-04 JAE EUN 4P 2.5(2.54)M
WA421	6630B08L001	CONNECTOR (CIRC),BOARD TO BOAR	JE604-08 JAE EUN 8P 2.5(2.54)M
WA423	6630V02M001	CONNECTOR (CIRC),WAFER	JE202-1-T-02 JAE EUN 2P 3.96MM
WA481	6630V02R002	CONNECTOR (CIRC),WAFER	JE202-1-T-02JAE EUN 2P
WA483	6630V02R003	CONNECTOR (CIRC),WAFER	3532B-0210 MOLEX 2P 7.92MM
WA485	6630V02R001	CONNECTOR (CIRC),WAFER	JE202A-1-T-02R JAE EUN 2P 7.92
WA486	561-661G	CONNECTOR	WAFER MOLEX,KOREA 5267-07A
WA501	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA502	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA601	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA602	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA904	561-661B	CONNECTOR	5267-02A K-MOLEX 2PIN 2.54MM S
WA991	6630V02R003	CONNECTOR (CIRC),WAFER	3532B-0210 MOLEX 2P 7.92MM
	6631RZY001C	CONNECTOR ASSEMBLY	HI-WAP 1 PIN 130MM FA-985 431
	6631RZY001D	CONNECTOR ASSEMBLY	HI-WAP 1 PIN 170MM FA-985 431